DEPARTMENT OF THE ARMY
HEADQUARTERS, FORT CARSON
Fort Carson, Colorado 80913-5039
1 June 1998

FC Reg 385-1

Safety
MOUNTAIN POST SAFETY

PURPOSE. This publication establishes the Mountain Post Safety Program, which is effective 1 June 1998.
REFERENCES. See Appendix A.
APPLICABILITY. The requirements contained in this publication apply to all personnel assigned to, attached to, or visiting this installation.
INTERNAL CONTROL SYSTEMS: The Standard Army Safety And Occupational Health Inspection (SASOHI) system prescribed by AR 385-10 is the primary control system for this program.
SUPPLEMENTATION: Organizations subordinate to Fort Carson may not supplement this publication nor establish local forms without approval of the Fort Carson Safety Director. Submit requests for approval to the proponent agency.
INTERIM CHANGES. Interim changes to this publication are not official unless authenticated by the Fort Carson Chief of Staff.

(AFZC-SAF)

FOR THE COMMANDER:

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This publication supersedes FC and 4D Reg 385-1, 4 OCT 93

Chapter 1
General

1-1. Purpose
This publication prescribes the Fort Carson Safety Program.

1-2. References.
Refer to the reference list at Appendix A.

1-3. Acronyms.
Refer to the glossary at Appendix B.

1-4. Explanation of Terms.
Refer to definition at Appendix C.

1-5. Forms.
Refer to the sample forms at Appendix G.

1-6. Leader Safety Ownership.
Leaders must instill safety awareness in their organizations. Unfortunately, no one can issue safety like fuel or ammo; safe performance evolves through leadership, risk management, adhering to standards, and proactive safety officers aggressively applying a well-defined accident prevention plan. Leadership involves personal involvement on a day-to-day basis. Leaders must make safety a normal part of the planning process for every event. Soldiers must know they can enforce safety standards and procedures with confidence that their superiors will support them.

1-7. Authority to Halt Operations.
The Fort Carson Safety Director or a designated representative of the safety staff may halt operations or modify any operation that presents an imminent danger.

1-8. Responsibilities.
a. Fort Carson Safety Director.
The Fort Carson Safety Director will:
(1) Perform the safety staff functions outlined in AR 385-10, FORSCOM Reg 385-1, and FC Reg 10-2.
(2) Perform liaison functions with external safety organizations and agencies.
(3) Implement the applicable components of the 29 CFR Parts 1910, 1926, and 1960.
(4) Furnish training and promotional material, safety guidance, and assistance to both active and reserve units on Fort Carson, and to designated National Guard units.
(5) Administer, coordinate, and monitor the Army Motorcycle Safety Course contract.
(6) Coordinate commanders' accident investigation reviews.
(7) Serve as the Installation point of contact for regional OSHA visits.
(8) Supervise the Installation Worker's Compensation Program.
(9) Manage the Installation Aviation Safety Program.
b. Provost Marshal.
The Provost Marshal will:
(1) Furnish copies of military police reports that contain accident information to the FCSO.
(2) Provide traffic accident statistics to the FCSO.
(3) Check for compliance with vehicle seat belt and motorcycle requirements.
(4) Provide safety investigators an information copy of each off post accident that injures a Fort Carson soldier.
c. FECA Administrator.
The FECA administrator will maintain records and perform analysis of worker's compensation costs and days lost.
d. Director of Health Services.
The Director of Health Services will:
(1) Provide access to safety-related information on hospital admissions, clinic visits, and patient disposition, to the FCSO.
(2) Implement the occupational health components of the 29 CFR Part 1910.
(3) Ensure that industrial hygiene, occupational health, and environmental health personnel maintain liaison with the FCSO, unit and activity safety officers.
(4) Provide OSHA 200 Log data on occupational injuries and illnesses to the FCSO.
(5) Provide occupational safety and health related committees and working groups with occupational health guidance.
(6) Provide medical and forensic support during accident investigations.
e. Directorate of Public Works (DPW).
The Director, DPW will:
(1) Coordinate with the PMO and the FCSO to determine those areas that have dangerous roads.
(2) Coordinate with appropriate agencies to facilitate maintenance and construction of roads and bridges, traffic control signs, and other regulatory devices.
(3) Coordinate with the FCSO to determine priorities for abating safety deficiencies.
(4) Budget for and correct physical deficiencies identified by OSHA inspections.
f. Civilian Personnel Advisory Center (CPAC) will:

(1) Coordinate with the FCSO concerning all complaints affecting the employee's workplace to evaluate unsafe or unhealthy working conditions.

(2) Notify the FCSO promptly when a union member files a safety-related complaint.

g. G3.

G3, in cooperation with the DRCS, will ensure that the safety officer/NCO from each visiting unit, including Reserve, National Guard, and active duty units, report to the FCSO for a safety briefing before commencing their training.

h. G4/Directorate of Logistics (G4/DOL).

The Director, G4/DOL will:

(1) Ensure that the G4/DOL Transportation Division complies with the report requirements for accidents involving conventional munitions and explosives IAW AR 385-14.

(2) Provide initial accident reports to the G3 Operations Center (emergency use only numbers: 526-3223/3052/2960).

i. Commanders and Directors.

Commanders and directors will:

(1) Develop and implement a safety program IAW this publication.

(2) Appoint additional duty safety officers/civilians and NCOs at Directorate/ Company/Troop levels and above. Minimum grade for a safety NCO is SSG.

(3) Ensure that new safety officers receive an orientation briefing from the safety officer/NCO of the next higher headquarters within two weeks of assuming their duties as the safety officer.

(4) Ensure that all military safety officers/NCOs attend the Fort Carson Safety Officer Training Course (SOTC) within 90 days of appointment. Directorate safety representatives receive training during special Supervisors Safety Training.

(5) Incorporate risk management into training and work procedures.

(6) Review unit, directorate, or activity accident experiences to ensure adequate safety procedures.

(7) Develop plans to abate hazards.

(8) Develop risk management plans before field exercises.

(9) Promptly investigate all recordable accidents and forward an accident report to the FCSO within fourteen consecutive days after the date the accident occurred.

(10) Fulfill responsibilities regarding military driver education.

(11) Ensure that motorcycle and moped riders wear proper personal protective clothing and equipment IAW AR 385-55 and attend the Motorcycle Safety Course.

(12) Ensure that their personnel understand the rules and benefits of seat belt use.

(13) Ensure their personnel use personal protective equipment during industrial and tactical operations.

j. Safety Officers/NCOs will:

(1) Manage and administer the safety program.

(2) Establish and develop essential safety program elements.

(3) Monitor subordinate unit safety programs.

(4) Advise and assist their commander or activity director with organizing, implementing, and administering the safety program.

Chapter 2
Military Safety Program Management

2-1. Safety Officer Duties.

a. MSC Safety Officers.

MSC safety officers will:

(1) Retain appointment orders for each MSC and battalion, or squadron, safety officer.

(2) Report to the FCSO for a briefing on their duties within two weeks of appointment and retain a record of the briefing for one year. Forward a copy of the appointment orders to the FSCO.

(3) Attend the FC SOTC within 90 days of appointment. Retain a copy of the course completion certificate in the safety files.

(4) Develop and publish a written safety program.

(5) Manage the S&OHAC IAW this publication.

(6) Maintain a log of recordable accidents reported by the command. The record will contain, as a minimum, causes and corrective action taken to preclude recurrence of that type of accident.

(7) Inform the commander of all recordable accidents within the command.

(8) Notify the FCSO ASAP after a recordable off-duty injury occurs.

(9) Contact the FCSO no later than one working day following an on-the-job industrial injury, for accident investigation assistance.

(10) Ensure that the commander signs each accident report. Ensure that each accident report arrives at the FCSO within fourteen consecutive days after the date the accident occurred.

(11) Inspect at least one subordinate unit safety program quarterly.

(12) During safety inspections, check to see that the unit conducts and records safety briefings IAW this publication.

(13) During safety inspections, check that a safety incentive awards program is established and implemented.

(14) During safety inspections, audit subordinate command accident reports for completeness and timely submission.

(15) Retain safety inspection records for two years.

(16) Maintain a safety reference library IAW this publication.

(17) Retain safety program records as follows: retain general files for one year, retain accident reports, safety inspections, and safety awards for two years.

(18) Ensure each newly assigned soldier receives an orientation briefing on safety hazards IAW this publication.

b. Battalion, Squadron, and Separate Safety Officers.

Battalion, squadron, and separate unit safety officers will:

(1) Retain appointment orders for each subordinate unit safety officer. Frward a copy of the appointment orders to the MSC safety officer.

(2) Report to the next higher command safety officer/NCO within two weeks of appointment for a briefing on their duties.

(3) Attend FC SOTC within 90 days of appointment.

(4) Develop, or adopt, and publish a written safety program.

(5) Manage the S&OHAC IAW this publication.

(6) Ensure that the unit commander reviews and signs each accident report.

(7) Retain a copy of each recordable accident report for two years.

(8) Ensure each soldier receives an orientation briefing on safety hazards.

(9) Inspect at least one subordinate unit safety program each month.

(10) Establish and implement a safety incentive awards program.

(11) Maintain a safety reference library IAW this publication.

(12) Retain general safety program records for one year and retain accident reports, safety inspections, and safety awards for two years.

c. Company, Troop, and Battery Safety Officers.

Company, troop, and battery safety officers will:

(1) Report to the battalion or squadron officer/NCO for a briefing on their duties within two weeks of appointment.

(2) Attend the FCSO SOTC within 90 days of appointment.

(3) Notify the battalion or squadron safety officer/NCO and the FCSO when a reportable accident occurs. Assist with the investigation and accident report as needed.

(4) Conduct one safety inspection each month and retain the inspection record for one year.

(5) Establish and manage a safety awards program IAW this publication and AR 672-74.

(6) Maintain a safety reference library IAW this publication.

(7) Retain documents relating to the unit safety program for one year.

(8) Brief each newly-assigned soldier IAW this publication.

2-2. Safety Inspections.

a. MSCs.

MSC safety officers will inspect one battalion or squadron for safety program compliance per quarter.

b. Battalions and Squadrons.

Battalion and squadron safety officers will inspect one company, or troop, for safety program compliance per month.

c. Companies, Troops, and Batteries.

Company, troop, and battery safety officers will inspect their areas monthly.

d. Conduct.

Safety officers will use this publication, previous inspection reports, and hazard checklists to conduct safety inspections.

e. Hazard Abatement.

For safety deficiencies not correctable at unit level, a work request (DA Form 4283) will be prepared and routed through the FCSO to DPW.

f. Records.

Each unit and activity will retain their safety inspections for two years. Inspection records will contain the following information.

(1) A copy of the checklist and the hazards found.

(2) Date of the inspection.

(3) Unit inspected.

(4) Inspector's signature.

(5) Action taken to correct or abate hazard.

(6) Evidence that the commander, director, or supervisor has reviewed the inspection results.

2-3. Safety Briefings.

a. New Personnel.

Commanders will ensure new personnel are briefed on the safety program, local hazards, and their responsibility to prevent accidents and report hazards. Retain a copy of the safety briefing in the soldier's training folder. Destroy the form when the soldier departs the unit or activity.

b. Brief newly assigned personnel on the following:

(1) Hazards of the job tasks they will do.

(2) Hazards of the work areas.

(3) Wearing or use of required personal protective equipment to include hearing and eye protection.

(4) Location and use of emergency and fire protection equipment.

(5) How to identify and report hazards.

(6) How to report work-related injuries and illnesses.

(7) Army hazard reporting system.

(8) Seat belt use.

(9) Seasonal briefing (winter and summer activities).

(10) Fire hazards.

(11) Firearms.

(12) Hunting.

(13) Boating and rafting.

(14) Rock climbing.

(15) Effects of altitude.

(16) Hypothermia.

(17) Other outdoor activities as appropriate.

(18) Use of safety equipment to include seat belts, helmets, gloves, etc., while operating a POV, motorcycle on or off post. Supervisors will schedule soldiers to attend the Army Motorcycle Safety Course.

(19) Schedule the soldier for HazCom training.

c. Periodic Safety Briefings.
Company, troop, and battery commanders will brief their personnel on safety before each payday, field exercise, and extended holiday periods. Schedule periodic unit safety briefings on the unit training schedule and retain a copy for one year.

d. Briefing Materials.
Obtain safety video tapes from the Regional TSC Audiovisual Section. Refer to the Fort Carson Commander's Safety Plan for the fiscal year to determine the monthly briefing subjects.

2-4. Driving Records.
Enter the following items on the Equipment Operators' Qualification Record.

(1) At-fault motor vehicle accidents (ACV, AMV, and POV).

(2) Safe driving awards.

(3) Driver refresher training.

(4) Remedial driver training.

(5) Special training, such as NVD driver training.

2-5. Safety Reference Library.
To support the unit safety program, safety officers will retain the publications listed in the following table. Place the publications in a binder and label the binder IAW AR 25-400-2.

Safety Reference Library
AR 385-10
AR 385-40
AR 385-55
DA Pam 385-40
FC Reg 385-1
FC Reg 385-2
FC Reg 385-63
USASC Inspection Checklist

Table 1 Safety Reference Library

Chapter 3
Civilian Safety Program Management

3-1. Administration.
Each civilian organization will publish a safety SOP to supplement this directive. Each section, branch, and shop will have a copy of their SOP located in their area.

3-2. Safety & Occupational Health Advisory Council.

a. Directors will establish and organize a S&OHAC. Membership will include division chiefs, a union representative, and other personnel necessary to ensure implementation of safety policies, regulations, and standards. The activity director, or deputy director, will chair the council.

b. The council will meet twice yearly, or more often if needed. Review and analyze inspection results and accident experiences to determine the root cause. Forward recommendations to correct the root cause to the activity director commander.

c. Forward a copy of the meeting minutes to the FCSO.

3-3. Safety Representative (SAFREP) and Assistant Appointments (Director level).

a. Designate a SAFREP and an assistant in writing.

b. Select a person with a retention of at least one year.

c. The FCSO will brief the SAFREP and the assistant on their responsibilities within two weeks after appointment.

d. The SAFREP and assistant will attend the Civilian Supervisor Safety Training. Retain a copy of the certificate of completion in the safety files.

3-4. Federal Employees Compensation Act (FECA).

a. The director or supervisor directly responsible for the operation, material, or persons involved in an accident will:

(1) Investigate accidents IAW AR 385-40.

(2) Prepare accident reports IAW the Supervisor's Handbook.

(3) Ensure that the FECA Administrator gives the employee the proper forms.

(4) Upon receipt of the completed form from the employee, complete the remaining items and forward the report the FECA Administrator promptly.

(5) Ensure that only the immediate supervisor issues the CA-16. Normally, issue the form after a traumatic injury occurs or medical care is required or requested. Do not issue a CA-16 for an occupational disease or occupational illness claim. If an employee requires medical treatment because of a traumatic on-the-job injury, the supervisor will complete the front side of the form promptly.

(6) In an emergency (no time to complete for), the agency may telephonically authorize medical treatment and forward the completed form by NLT COB of the first day following the injury. Forward a copy of the employee's job description, the CA-16, and CA-17 to the treating physician.

(7) Refer emergency cases to the nearest medical treatment facility. Initial medical treatment at the U.S. Army Evans Community Hospital (EACH) may be available if the employee chooses. Once the employee selects a treating physician, remind the employee that they may not change physicians without approval of the Office of Worker's Compensation Program (OWCP).

(8) Ensure all employees who seek medical treatment return to work through Occupational Health (OH).

(9) Supervisors will provide light-duty work of a suitable nature, consistent with recommendations of the employee's physician. When light duty restrictions will exceed 30 days, submit a written task list outlining the light duty tasks to the FECA Administrator within 35 days.

(10) Maintain the necessary CA Forms and return all completed forms to the FECA Administrator. Get these forms from the DOIM stockroom.

b. Employees will:

(1) Report all on-the-job injuries to their supervisor immediately.

(2) Complete the appropriate forms for all on-the-job injuries or illnesses. See guidance in the Supervisor's Handbook.

c. Traumatic Injury.
Complete the CA-1 return it to the supervisor within two working days after the injury, or as soon as the employee becomes aware of a problem caused by a job injury.

d. Occupational Illness.

(1) Submit the CA-2 within 30 calendar days after becoming aware of the illness.

(2) Follow the instructions of the attending physician until released from medical care. Keep your supervisor and the OH office advised of your medical status.

(3) Advise their physician of the availability of light duty program at Fort Carson.

(4) Promptly comply with any OWCP requests in furnishing reports or required proof.

(5) Notify the supervisor immediately of any absence from work due to the work-related injury.

(6) Accept light duty assignments made IAW physician's release.

e. Supervisors will:

(1) Conduct section or branch safety briefings.

(2) Provide safety orientation briefings to all newly assigned personnel on branch, activity, and Fort Carson safety policies within the first week of arrival at the activity. Document the briefing, to include name, date, and subjects covered.

(3) Retain the briefing record in the employee's training record for one year. The SAFREP will make the briefing records available for review by the FCSO during inspections.

(4) Conduct monthly inspections of work areas. The shop supervisor or his designated representative of the branch, section, or shop will conduct inspections noting deficiencies and corrective actions taken. The inspector will brief the SAFREP on repeated discrepancies. The SAFREP will retain the inspection records for one year.

(5) Contact the FCSO no later than one working day following an on-the-job injury (lost time only) for assistance in conducting a timely and thorough investigation of the accident.

(6) Supervisors will help prepare an AGAR for each accident involving property damage exceeding $2,000. Forward the report through the Director for their review and signature. Forward the AGAR to the FCSO within fourteen consecutive days after the accident. Retain the report for two years.

(7) Brief the director on the cause and corrective action taken to reduce or eliminate such accidents before forwarding the accident report to the FCSO.

(8) Prepare a job hazard analysis for each job and incorporate in performance standards.

Chapter 4
Standard Army Safety and Occupational Health Inspections (SASOHI).

4-1. Authority.
AR 385-10, The Army Safety Program.

4-2. Policy.
a. Normal.
The FCSO will conduct spot inspections of directorates and selected tenant unit programs annually. The FCSO will conduct a SASOHI annually on work areas.

b. Special and High-Risk Activities.
The FCSO will randomly select high-risk activities, or units experiencing an adverse accident trend, to inspect more frequently. The FSCO will inspect facilities and operations involving special hazards more frequently as determined by the safety director.

4-3. Procedures.
a. SASOHI Inspection Procedures.
The FCSO may conduct a SASOHI without prior notice. Normally the FCSO will:

(1) Notify the organization in writing of the inspection period.

(2) Brief the commander or director immediately before and after the inspection.

(3) Prepare a written report of discrepancies and forward a copy of the inspection report through the chain of command to the unit or directorate. Commanders and directors will ensure a prompt written response to each deficiency.

(4) Conduct a follow-up inspection to determine the corrective action taken to abate discrepancies.

(5) Assign a rating of either "Satisfactory" or "Unsatisfactory".

b. Spot Inspection Procedures.
The FCSO may conduct spot inspections without notice. The inspector will:

(1) Contact the person in charge of the operation.

(2) Brief the commander or director immediately before and after the inspection.

(3) Prepare a written report of discrepancies and forward a copy of the inspection report through the chain of command to the unit or directorate. Commanders and directors will ensure a prompt written response to each deficiency.

(4) Conduct a follow-up on corrective actions taken to abate the discrepancies.

Chapter 5
Safety and Occupational Health Advisory Council (IS&OHAC).

5-1 Installation Safety and Occupational Health Advisory Council (IS&OHAC).
a. General.
Due to the non-divisional organizational structure at Fort Carson, normal council requirements are met through the conduct of the Garrison Civilian Resource Conservation Program Council, refer to the fort Carson CRCP Action Plan for further guidance, and MSC organization councils. The Installation Commander may direct that special installation council convene if circumstances warrant. Recurring installation-level meetings such as Command and Staff, Review and Analysis, Quarterly Training Briefs, ALARC, TRMM and installation staff meetings regularly address safety subjects.

b. Membership
Specifically convened Installation Safety Council members would be:

(1) Commanding General (Chairman)

(2) Deputy Commanding General (Vice-Chairman)

(3) Garrison Commander

(4) Chief of Staff

(5) Installation Command Sergeant Major

(6) Staff Judge Advocate

(7) Commander of each MSC and separate battalion

(8) Provost Marshal

(9) Director of Community Activities

(10) Director of Public Works

(11) Director of Environmental Compliance and Management

(12) G3

(13) Director of Information Management

(14) Director of Resource Management

(15) Director of Contracting

(16) G4/Director of Logistics

(17) Civilian Personnel Advisory Center

(18) Fire Chief

(19) American Federation of Government Employees Local 1345
(20) DCA, Alcohol and Drug Officer
(21) MEDDAC, Preventive Medicine Division
(22) Installation Aviation Safety Officer
(23) Public Affairs Officer
(24) FCSO, Federal Employee Compensation Administrator
(25) Commander, Butts AAF
(26) G1/AG
(27) Safety Director (Executive Secretary)
(28) Director of Army Community Service

c. Delegation of Safety Council Duties.
Council members will not delegate their safety council duties to junior officers or to non-commissioned officers.

d. Schedule.
The safety council will meet as needed if rates, trends, or other conditions indicate. The council will review the Fort Carson ground accident experience, flight accident experience, environmental engineering, alcohol and drug control, and fire prevention. The council will make recommendations to the commander for improving and developing the safety program. The FCSO will notify council members of the council meeting schedule.

e. Minutes.
The FCSO will publish the safety council minutes. They will distribute the minutes as follows:
(1) Fort Carson Command Section
(2) Each council member
(3) Each directorate and MSC

f. Records.
The FCSO will retain the council minutes IAW AR 25-400-2. Each directorate and MSC will retain a copy in their safety files for one year.

5-2. Unit and Directorate Safety and Occupational Health Advisory Councils.

a. General.
Each Directorate, MSC, squadron, battalion, separate company, and separate battery will establish and organize a S&OHAC.

b. Membership.
Members will include a representative from each immediate subordinate command, the safety officer, fire marshal, HazCom program trainer, and other personnel necessary to ensure implementation of safety policies, regulations, and standards.

c. Schedule.
The council will meet at least twice each year, or more often as desired.

d. Minutes.
Publish the meeting minutes as follows: command group, each council member, and the safety officer/NCO of the next higher headquarters.

e. Suggested discussion topics at unit safety councils.
(1) Accident reports.
(2) Accident experiences and trends.
(3) Junior officer/NCO safety ownership.
(4) New equipment, procedures, hazards, and changes in operations needed to eliminate hazards.
(5) Protective clothing and equipment and how to obtain and maintain it.
(6) Hazards incident to the mission of the unit or activity.
(7) Training problems related to safety of individuals: Solutions and Recommendations.
(8) Driver education, training, and enforcement.
(9) Safety policy, regulations, and standards implementation.
(10) Recreational and other off-duty hazards.
(11) Techniques of maintaining interest in conformance of safety requirements.
(12) Fire prevention, escape routes, and fire fighting equipment maintenance.
(13) Recent safety inspections.
(14) Seasonal and environmental precautions for personnel and equipment.
(15) Leadership by example for both officers and NCOs.
(16) Enforcement of SOPs, directives.
(17) Unit safety incentive awards program.
(18) Exchange of ideas for troop briefings and training.
(19) Coordination of responsibilities for various aspects of the safety program; i.e., orientation briefings.
(20) Hazardous chemical communications training program.
(21) Risk management program elements.
(22) Safety-of-use messages.
(23) Safety Awareness Stand Down Day activities.
(24) Crew drills.
(25) Load plans.
(26) Shop operation.
(27) Asbestos precautions.
(28) Back injury prevention (ergonomics).
(29) Radiation safety.
(30) PS Magazine TB 43-P5000 (maintenance safety).

Chapter 6

Risk Management

6-1. Purpose.
Protecting the Total Force through risk management is a responsibility of leadership at all levels. Embedding risk management into Army systems and individual behavior involves unequivocal commitment to a cultural change that requires careful management in order to capture the full power of risk management and shape this process in support of Army XXI.

6-2. Policy.
The operations officer is the principal staff officer for integrating risk management. Every soldier is responsible for complying with risk management efforts and being actively involved in risk reduction. Anyone who is aware of a hazard which has not been evaluated must notify those who are directly affected.

6-3. Responsibilities.
a. All commanders.
(1) Every commander, leader, and manager is responsible for protecting the force through risk management. Leadership is key to protecting the force and enhancing readiness. Risk management is the principal risk-reduction process to assist leaders in identifying and controlling hazards and making informed decisions. Protecting the force includes operations security, fraticide avoidance, provision of health, morale, and welfare services, and prevention of injury before, during, and after deployment. Each of these is essential to preserving combat power and is necessary if Army XXI is to win decisively with minimum casualties.
(2) The standard for risk management is leadership at the appropriate level of authority making informed decisions to control hazards or accept risks. Commanders, leaders, and managers at all levels are responsible and accountable for ensuring that during planning and execution they proactively manage the risks to the level commensurate with higher commanders' intent. In those circumstances where local resources are not available to control residual risks, leaders will make conscious decisions to either accept the risk or elevate the risk decision to their next level of leadership. This process will continue, within the constraints of law, until the risk management standard is achieved. The risk management process enhances leaders' ability to take calculated risks to preserve the force and defeat the enemy.
(3) Commanders will assess the risk of each mission. A Colonel in the chain of command must approve missions assessed a residual risk rating of "HIGH RISK". The first general officer in the chain of command must approve missions assessed a residual risk rating of "EXTREMELY HIGH RISK".
b. Unit commanders.
Unit commanders may delegate approval authority for "medium" and "low" risk level operations to the appropriate leader in the chain of command responsible for the conduct of that operation.
c. Records.
Units will maintain copies of written risk assessments on all "high" and "extremely high" risk level operations for one year after the completion of the operation. All risk assessments must have the signature of the appropriate approval authority and will be subject to inspection.
d. Training.
All leaders will attend Risk Management Training IAW FC Reg 350-1.
e. Materials.
Units should develop their own risk assessment worksheets tailored to the unit's missions and proficiency level. This will reduce the time required to evaluate recurring missions. The Fort Carson Safety Office has risk assessment materials available on request. Examples of these materials are Risk Assessment worksheets, guides and checklists. None of these materials are mandatory, however, their use is highly recommended.

6-4. Risk Management Process.
The following subjects may be considered in completing the first two steps in the risk management process, identifying hazards and assessing risk:
Factors to Consider when Identifying Hazards.
a. Time for mission preparation and execution.
b. Critical accident problem areas.
c. Terrain (rough, hills, swamp, etc.).
d. Transportation to and from the operational site.
e. Long hours and probability of fatigue (length of operations, inadequate sleep).
f. Intensity of operation (probability of taking shortcuts).
g. Competition for time (some activities may be considered unimportant, e.g. instruction, safety briefings, etc.).
h. Personnel attitudes (macho or poor motivation, etc.).
i. Skill level of personnel (training, experiencee, degradation over time, proficiency, etc.).
j. Range operational hazards.
k. Maintenance operational hazards.

l. Water operational hazards (identify weak swimmers, water temperature, depth, width, current, debris, equipment weight, etc.).

m. Building conditions (fire hazards, structural integrity, etc.).

n. Vehicle operations (backing in congested motor parks or assembly areas without ground guides, lack of crew coordination, improper driver selection, unfamiliar with local driving customs, off-road driving, improper loading and securing of passengers and cargo, lack of PMCS, following too close, rollovers, failure to use safety belts, excessive speed for conditions).

o. Convoy operations (inadequate clearance, improper convoy organization, trailer connections, and driving procedures, unfamiliar and unusual driving practice).

p. Road conditions (narrow, congested, curvy, hilly, slippery, etc.).

q. Convoy route (sufficient room for rest or halt areas, unexpected narrow points, and intersections along route, etc.).

r. Communication and coordination requirements (within units, between units, with joint services, counter-fratricide measures).

s. Logistical support.

t. Weather (existing and forecast).

u. Animal, insect, plant hazards.

v. Equipment condition (age, maintenance status, etc.).

w. Day versus night operations.

x. Cargo (type, quantity, security).

y. Speed limits.

z. Hazardous materiel (fuel points, ammunition supply, improper handling, storage, and safety precautions, unexploded ordnance, etc.).

aa. Supervision (direct or indirect).

bb. Enemy.

cc. Moving turrets, lack of crew coordination, improperly secured hatches and malfunctioning latches.

dd. Bivouac operations (run-over, failure to use or improper use of ground guides, sleeping in the filed, tent fires, winds and flash floods).

Chapter 7
Hazard Reporting

7-1. Purpose.
To detect hazards before the hazard causes or contributes to an accident.

7-2. Policy.
Commanders and directors will establish procedures for employees to report hazards IAW AR 385-10 and this publication. Commanders, directors, and supervisors will make blank DA Form 4755, Employee Report of Alleged Unsafe or Unhealthful Working Condition, readily available in the workplace to all personnel. Supervisors will place the blank hazard reporting forms in a place where the supervisor can not monitor who takes them. Commanders, directors, and supervisors will not retaliate against personnel who file a hazard report with sanctions, disciplinary actions, or adverse administrative actions. The FCSO will investigate all hazard reports and RBI to the originator within ten working days of receipt.

7-3. Procedures.
Complete the report as much as possible and submit the completed hazard report directly to the FCSO. A signature is not required.

7-4. Appeals.
If the person who filed the report is dissatisfied with the FCSO response, the originator may file an appeal IAW AR 385-10.

Chapter 8
Accident Investigation and Reporting

8-1. General.
Accident reporting and investigation will be performed per AR 385-40, DA Pam 385-40, FORSCOM Reg 385-1, and this regulation.

8-2. Initial Notification of Accidents.
The commander or director of the unit/activity sustaining the accident will immediately report the accident to the Emergency Operations Center (EOC), extension 526-5914/3400. EOC will notify all appropriate response agencies during duty and non-duty hours. Downrange accidents are reported according to FC Reg 385-63, para 1-4. Range Control upon receiving notification of an accident will take appropriate emergency measures to assist the unit in obtaining aid and make required notifications. The Logistic Assistance Office (LAO) will be notified when Army vehicles or equipment are involved in the accident.

8-3. Accident Classification.
Accidents are classified by severity of injury and property damage. Accident classes are used to determine the appropriate investigation and reporting procedures. The accident classes are:

a. Class A accident - the resulting total cost of property damage is $1,000,000 or more; an Army aircraft or missile is destroyed; or an injury or

occupational illness results in a fatality or permanent total disability.

b. Class B accident - the resulting total cost of property damage is $200,000 or more, but less than $1,000,000; an injury or occupational illness results in permanent partial disability, or when five or more people are hospitalized as inpatients.

c. Class C accident - the resulting total cost of property damage is $10,000 or more, but less than $200,000; a non fatal injury that causes any loss of time from work beyond the day or shift on which it occurred; or a nonfatal occupational illness that causes loss of time from work or disability at any time.

d. Class D accident - the resulting total cost of property damage is $2,000 or more but less than $10,000.

8-4. Accident Reports.
The commander or supervisor directly responsible for the operation, materiel, or personnel involved in the accident will ensure that the appropriate accident report is completed and forwarded to the Fort Carson Safety Office within 14 consecutive days of the accident. On duty class A and B accidents will be reported on DA Form 285, U. S. Army Accident Report. All other accidents will be reported using DA Form 285-AB-R, Abbreviated Ground Accident Report.

8-5. Accident Investigation.
Safety investigations are conducted for the sole purpose of accident prevention. Commanders or their representative will investigate all accidents to determine the unsafe acts, conditions, and/or deficiencies which led to the accident. Findings are used to develop corrective actions to prevent reoccurrence.

8-6. Centralized Accident Investigation - Ground (CAIG) Program.

a. All on duty class A and B ground accidents will be investigated by a CAIG board. The commanding general or a designated representative will appoint a president and other members of the board. When the US Army Safety Center declines to investigate the accident, the CG will appoint a installation level board (I-CAIG). These procedures are applicable to all organizations at Fort Carson.

b. The CAIG board consists of a board president, a recorder, and technical members as necessary. The board president will be a minimum of field grade, preferably branch qualified in the area being investigated.

c. The first commander in the unit chain of command who becomes aware of an on duty class A or B ground accident will:

(1) Ensure that soldiers are cared for and casualties are evacuated and treated as needed. This includes moving soldiers and security guards to safe distances from danger or hazards.

(2) Secure the accident site to prevent disturbance of the site or movement of wreckage and equipment until relieved by proper authority.

(3) Immediately report the accident to the Emergency Operations Center, extension 526-5914/3400, who will notify all appropriate response agencies.

(4) Coordinate all actions with appropriate authorities for accidents occurring in areas not under Army control.

(5) Minimize environmental damage. Cleanup of oil, fuel, and other hazardous material spills will be accomplished as soon as possible. If a hazard exists, cleanup will take precedence over preservation of the accident site.

(6) Provide military police, USACID, or civil authorities access to items of evidence that could be destroyed by time or the elements before the CAIG board arrives at the accident site.

(7) Provide support to the CAIG board as required by AR 385-40.

8-7. CAIG Report.

a. The CAIG board president will provide an outbrief to the CG as soon as the initial findings are made.

b. CAIG reports will be processed promptly.

c. The Fort Carson Safety Office will prepare a memorandum routing the report through the chain of command to the approving official.

d. The initial reviewing official will be the commander of the unit involved or the commander of the supervisor directly responsible for the operation, material, or persons involved in the accident. The initial reviewing official will:

(1) Concur or nonconcur in the findings and recommendations of the CAIG report.

(2) Note corrective actions taken or proposed and recommendations for additional actions by higher headquarters or other agencies.

(3) Ensure that factual data of the accident are circulated promptly within the organization and that recommendations which can be put into effect immediately are implemented.

e. The commanding general or a designated representative will approve or disapprove each recommendation made by the CAIG board as written

or amended by reviewing officials and make additional comments as required.

f. The Fort Carson Safety Office will forward the original and one copy of the CAIG report through the appropriate channels to the US Army Safety Center.

Chapter 9
Safety Awards

9-1. General.

a. The Fort Carson safety awards program is established to recognizes and rewards organizations and personnel for safe performance. It also recognizes and rewards them for making significant contributions to the installation accident prevention effort. The program is designed to instill a sense of pride and accomplishment in promoting safety.

b. The use of awards as an adjunct to a comprehensive accident prevention program is effective in promoting safety awareness. Therefore, all organizations will conduct an awards program IAW AR 385-10, AR 672-74, FORSCOM Reg 385-1, and this regulation.

c. Commanders and directors may supplement this program to enhance their organizational safety program. DA Form 1119, and DA Form 1119-1, US Army Certificate of Achievement in Safety, may be used to recognize safe performance displayed by individuals and units. The certificate will contain a citation that describes the contribution for which the award is given.

9-2. Safety Awards and Criteria.

a. Unit Accident Prevention Awards listed in AR 672-74.

(1) Director of Army Safety Award - Eligibility requirements: A unit must make significant improvements in its safety record when compared with the previous fiscal year and must experience no class A, B, or C accidents during the fiscal year of nomination.

(2) USA Award of Excellence in Safety (Air or Ground) - Eligibility requirements: A unit must complete 36 consecutive months without experiencing a class A, B, or C accident in the appropriate category of ground or air award.

(3) USA Award of Honor in Safety (Air or Ground) - Eligibility requirements: A unit must complete 24 consecutive months without experiencing a class A, B, or C accident in the appropriate category of ground or air award.

(4) USA Award of Accomplishment in Safety (Air or Ground) - Eligibility requirements: A unit must complete 12 consecutive months without experiencing a class A, B, or C accident in the appropriate category of ground or air award.

(5) Commanding General's Special Safety Award - Eligibility requirements: A unit must achieve exemplary safety performance for a period of 1 year, or complete a major exercise without a class A, B, or C accident.

b. Individual Accident Prevention Awards listed in AR 672-74.

(1) Chief of Staff, Army, Award for Excellence in Safety. Eligibility requirements: An individual must make significant contributions to the Army accident prevention effort. Examples are listed in Chapter 3-1b of AR 672-74.

(2) USA Safety Guardian Award - Eligibility requirements: An individual must, through extraordinary individual action in an emergency situation, accomplish one of the following:

(a) Prevent an imminent danger situation.

(b) Minimize or prevent damage to Army property.

(c) Prevent injury to personnel.

(3) USA Aviation Broken Wing Award- Eligibility requirements: An aircrewmember must, through outstanding airmanship, minimize or prevent aircraft damage or injury to personnel during an emergency situation.

(4) USA Aircrewmember Safety Award- Eligibility requirements: A nominee must complete at least 500 flight hours as an aircrewmember in US Army aircraft without experiencing a human factor related class A, B, or C accident.

(5) Director of Army Safety Special Award of Excellence. Eligibility requirements: An individual must demonstrate exemplary leadership in safety programs within the field.

9-3. Commanding General's Safety Award.

a. Recipients: Major subordinate commands, separate battalions, industrial activities, battalions, and squadrons.

b. Eligibility and nomination requirements: Unit must have demonstrated a proactive safety program throughout the year that resulted in a significant reduction in accident rates compared to the previous year. Timely submission of accident reports is also required. Commanders/ Directors will nominate their unit through the chain of command to the Fort Carson Safety Office. DA Form 1118, Certificate of Merit for Safety, will be presented by the CG or a designated representative.

9-4. Unit/Activity Safety Awareness Award

a. Recipients. Company, battery, troop or activity as selected and approved by major subordinate commander/director. DA Form 1118, Certificate of Merit for Safety, will be presented by the CG or a designated representative.

b. Eligibility. Units must meet the following criteria to be nominated for award:

(1) A reduction in all categories of accident rates compared to the previous year.

(2) Civilian activities must have a reduction in on-the-job injuries and FECA claims compared to the previous year.

(3) Documented safety inspections of work areas with noted corrective actions taken.

(4) Timely submission of accident reports.

9-5. Individual Awards.

a. Wheeled vehicle operations. This award recognizes enlisted military and civilian wheeled vehicle operators for accident and violation free driving. Any at-fault military or POV accident (on or off duty) or moving traffic violation will disqualify the individual. Submit according to paragraph 9-6 below. Use the following criteria:

(1) Twelve months or 8,000 miles: DA Form 1119 , DA Form 1119-1, and a gift.

(2) Twenty-four months or 10,000 miles: DA Form 1119, DA Form 1119-1, and a gift.

(3) Thirty-six months or 15,000 miles: DA Form 1119, DA Form 1119-1, and a gift.

b. Tracked vehicle operators. Recognizes tracked vehicle operators. Individuals are eligible for only one award per year.

(1) Twelve months or 600 miles: DA Form 1119, DA Form 1119-1, and a gift.

(2) Twenty-four months or 1,200 miles: DA Form 1119, DA Form 1119-1, and a gift.

(3) Thirty-six months or 1,800 miles: DA Form 1119, DA Form 1119-1, and a gift.

c. Stationary equipment operators. Award is to recognize off-road/engineer equipment vehicles and stationary equipment operators as follows:

(1) Twelve months or 250 hours: DA Form 1119 and DA Form 1119-1.

(2) Twenty-four months or 500 hours: DA Form 1119 and DA Form 1119-1.

(3) Thirty-six months or 750 hours: DA Form 1119 and DA Form 1119-1.

d. Aviation safety award. This award recognizes aircrewmembers for accident free flying while assigned to Fort Carson. The following criteria applies:

(1) Twelve months or 250 flight hours: DA Form 1119 and DA Form 1119-1.

(2) Twenty-four months or 500 flight hours: DA Form 1119 and DA Form 1119-1.

(3) Thirty-six months or 1,000 flight hours: DA Form 1119 and DA Form 1119-1.

e. Aviation support safety award. Aviation support safety award (applicable to all personnel in aviation support and non-flying positions including armament, POL, avionics, and crew chiefs) recognizes outstanding support of accident or incident free flight hours while assigned to Fort Carson for twelve months: DA Form 1119 and DA Form 1119-1 will be used.

f. Civilian supervisor special achievement award. Recognizes civilian supervisors who make a significant contribution to the safety program. The organization director will sign DA Form 1118.

g. Civilian personnel may receive an award from their supervisor for an accident free work area and no lost days due to an accident. Nominees must meet the following criteria to receive DA Form 1118. Awards requiring signature of the commanding general must be processed through the Fort Carson Safety Office.

(1) Five years accident free work and no lost time signed by the director.

(2) Ten years accident free and no lost time signed by the garrison commander.

(3) Fifteen years accident free work and no lost time signed by the commanding general.

(4) Twenty years accident free work and no lost time signed by the commanding general.

h. Fort Carson safety officer/NCO and safety representative of the year award.

(1) Commanders/directors should nominate their personnel who have served as unit safety officer/NCO or safety representative for at least one year. The winners of these awards will receive a DA Form 1118 signed by the commanding general and a gift not to exceed $50.00 in value.

(2) Nominations will be solicited during November each year. All justification and supporting documentation should be attached to the nomination and be forwarded through the chain of command to reach the safety office by the last duty day of January.

(3) The Fort Carson Safety Office will make selections based upon performance throughout the year using the following indicators:

(a) Timely accident notification.

(b) Timely accident report submission.

(c) Reduction in unit accident.

(d) Innovative safety programs implemented within the unit or activity.

(e) Administration of the HAZCOM program.

i. Battalion or Squadron safety officer of the year award. Battalion and squadron commanders may select a safety officer/NCO for a safety award to recognize their contribution to the unit safety effort. Criteria should be similar to that used for selection of the Fort Carson safety officer of the year.

9-6. Procedures for processing safe driver/ operator awards.

a. Nominations will be made in accordance with unit/activity standing operating procedures. Recommendations for safe driver/operator awards must originate within the organization and be approved by the unit commander or activity director. The following administrative procedures apply:

b. The unit commander or supervisor will issue a memorandum through their chain of command, through the Provost Marshal Office (PMO), to the FCSO listing the nominee's name, social security number, grade, award type, type vehicle, mileage, and period of time involved. Include a unit POC with phone number.

c. The PMO must verify that the nominee has not had a traffic violation or an at fault traffic accident during the award period. Verification will be indicated by placing the Provost Marshal's stamp and the signature of the verifying person on the award recommendation.

d. The originating unit will prepare the award forms (DA Form 1119 and DA Form 1119-1) IAW AR 672-74 including the narrative or citation. Forward award certificate to the unit PAC to determine promotion point assessment.

e. Allow seven workdays for processing. If the soldier will PCS or ETS before that period, arrange with the FCSO to pick up the gift and award early.

Chapter 10
Federal Hazard Communication (HazCom) Program

10-1. Purpose.
To ensure evaluation of all hazardous chemicals produced or imported by chemical manufacturers, and the communication of hazard information to affected employees. Transmittal of information is to be accomplished by a comprehensive hazard communication program which includes container labeling, Material Safety Data Sheets (MSDS) and employee training. Hazard communication training conducted under this chapter also applies to the general training requirement of the Hazardous Material Transportation Safety Act of 1990.

10-2. Responsibilities.

a. G4/Directorate of Logistics (DOL).
The Director, G4/DOL will ensure that material management and supply functions comply with all requirements in AR 700-141. Ensure that the correct MSDS accompanies each hazardous material shipment and provide a MSDS with each hazardous material issued. Acquire the least hazardous material instead of hazardous materials in coordination with the requester and DECAM.

b. Directorate of Environmental Compliance and Management (DECAM).
The Director will:

(1) Provide guidance relative to proper disposal of hazardous materials, substances, or waste.

(2) Conduct staff assistance visits to advise units on hazardous material container labeling and condition.

c. Directorate of Contracting (DOC).
The Director, DOC will:

(1) Comply with all requirements in AR 700-141.

(2) Ensure that the Purchasing Officer informs all contractors whose employees work at Fort Carson of the hazardous chemicals their employees may contact. Provide the correct MSDS for each chemical to each contractor.

(3) Require the Purchasing officer to have all contractors working at Fort Carson provide a MSDS for each chemical they use. Contractors will forward MSDSs covering all hazardous material they will be using to the FCSO through the DOC within 3 days of commencing work.

d. Fort Carson Safety Office (FCSO).
The FCSO will:

(1) Comply with AR 700-141.

(2) Orient supervisors on the Hazard Communication Program during various supervisor development courses.

(3) Provide initial hazard communication training to designated trainers of civilian directorates and military units on Fort Carson. They, in turn, will provide hazard communication training as indicated in this chapter.

e. Industrial Hygiene Officer (IHO).
The IHO will:

(1) During regular, scheduled surveys, inspect the labels and the MSDS book for compliance. Assist supervisors with labeling and MSDS book organization as needed.

(2) Compare MSDS reviewed during scheduled surveys with the health hazard inventory sheets to ensure they are the same.

f. Supervisors:
Supervisors will:

(1) Ensure that all hazardous chemical containers are in good condition and properly labeled with:

(a) Identity of chemical(s).

(b) Appropriate hazard warning.

(c) Name and address of the chemical company.

(d) Product name and federal stock number.

(e) Conduct Job Hazard Analysis.

(2) If a chemical arrives without a MSDS, the appropriate supervisor will furnish NSN, name of product, manufacturer's name, POC, telephone number, and unit on the request in writing to FCSO for MSDS. Obtain the MHIS CDROM by having the publications officer update the DA Form 12-04-E, Block 0610. MSDS are also available on the Internet at http://132.198.109.38/msds/.

(3) Ensure that MSDS for products used in the work are accessible to all employees within that area. Place MSDSs in a binder along with a copy of the inventory.

(4) Contact the DECAM for proper disposal procedures for hazardous chemicals to include the proper MSDS.

(5) Ensure that their employees attend HazCom training upon initial job assignment, and when introducing a new chemical into the work area.

(6) Contact the IHO, and the FCSO before any non-routine work, such as dip tank cleaning, working on unlabeled pipes.

g. Employees

Employees will:

(1) Ensure correct container labeling IAW the HazCom standard.

(2) Ensure that they keep themselves informed about the hazards of the material they are using by reviewing the MSDS.

(3) Notify their supervisor whenever they discover an unlabeled container.

(4) Ensure that the required personnel protective equipment is in usable condition and is used.

(5) Ensure that they attend the DOD or similar training program.

h. Civilian Employees.

Representatives designated and trained from each directorate will:

(1) Be appointed on orders.

(2) Provide hazard communication training to DOD personnel within their respective directorates. Accomplish HazCom training using the train-the-trainer concept.

(3) Train their replacement as required.

(4) Ensure that personnel exposed during normal operating procedures receive the DOD HazCom certification training. Record the training on DD Form 1556 and retain it in the individual's personnel folder for the duration of employment plus 30 years.

(5) The Videotape, PIN 505-215 is available at TSC. Obtain the training materials, DOD 6050.5-G-1, and DOD 6050.5.W, through normal publications channels.

i. Military.

One primary, and alternate representative, either an officer or an NCO, designated and trained from each battalion will:

(1) Be appointed on orders.

(2) Provide hazard communication training to soldiers within their respective units. Accomplish the training using the train-the-trainer concept.

(3) Train their replacement as required.

(4) Ensure that personnel exposed during normal operating procedures receive the DOD HazCom certification training.

(5) The videotape, PIN 505-215 is available at TSC. Order the instructor's guide and the student workbook, DOD 6050.5-G-1 and DOD 6050.5-W through normal publication channels.

Chapter 11

Control of Hazardous Energy (Lockout/Tagout)

11-1. General.

a. Standard.

29 CFR 1910.147 standard applies to the control of energy during servicing and maintenance of machines and equipment. Normal production operations in which servicing and maintenance takes place are also included under this standard if the following occurs:

(1) An employee is required to remove or bypass a guard or other safety device; or

(2) An employee is required to place any part of their body into an area on a machine or piece of equipment where work is:

(a) Actually performed upon the material being processed (point of operation), or

(b) When associated danger zone exists during a machine operating cycle.

b. Application.

The standard does not apply to the following:

(1) Manual tool changes, adjustments and other minor servicing activities which take place during normal operations if:

(a) These servicing activities are routine, repetitive and integral to the use of the equipment for production, and

(b) The job uses an alternate, effective machine guarding measures.

(2) Work on cord and plug connected electrical equipment when:

(a) The hazard of unexpectedly energizing or starting the equipment is controlled by unplugging the equipment from the energy source, and

(b) The plug is under the exclusive control of the employee performing the servicing or maintenance; or

(c) Hot tap operations involving the transmission and distribution systems for substances such as gas, steam, water, or petroleum products when they are performed on pressurized pipelines, provided the employer demonstrates that: continuity of service is essential, shutdown of the system is impractical, and they follow documented procedures, and they use special equipment that effectively protects their employees.

11-2. Energy Control Program.

a. Purpose.

To protect employees from injury caused by unexpectedly energizing a machine or energy source.

b. Concept.

This program consists of energy control procedures and employee training. Employees will ensure that they understand and use the Lockout/Tagout procedure before servicing or maintaining a machine, equipment, or energy source. Essentially, the employee will isolate, and render inoperative, energy sources to prevent unexpected energizing, start up, or releasing stored energy.

c. Policy.

(1) If the energy-isolating device is lockout-capable, employees will use lockout procedures. Lockout is the preferred method of isolating machines or equipment from energy sources. Energy isolating devices will be designed to accept a lockout device when:

(a) Major replacement, repair, renovation, or modification of machines or equipment is performed, or

(b) Installing a new machine or equipment.

(2) A tagout system is allowable if either of the following occur.

(a) An energy isolating device is not capable of being locked out, or

(b) After conclusively demonstrating that the tagout system will provide the full employee protection as defined below.

11-3. Protective Materials and Hardware.

a. Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners or other appropriate hardware will be provided for isolating, securing, or blocking of machines, or equipment from energy source. supervisors will identify lockout and tagout devices with permanent markings. They will not allow employees to use those devices for any purpose other than energy control. All devices used must meet the following requirements:

(1) Lockout and tagout devices must be capable of withstanding the work environment for the entire time necessary to complete the job.

(2) Supervisors will purchase or construct tagout tags that will remain legible during environmental exposure, wet and damp areas, and corrosive environments.

(3) Lockout and tagout devices used must be standardized in color, shape, or size; additionally, print and format on tagout devices must be standardized.

(4) Lockout devices used must be substantial enough to prevent removal without the use of excessive force (such as bolt cutters).

(5) Tagout devices and their means of attachment must be substantial enough to prevent accidental removal. Attachment means used must be of a non-reusable type, attachable by hand, self-locking and non-releasable; equivalent to a one piece, all environment-tolerant nylon cable tie.

(6) All lockout and tagout devices must indicate the identity of the employee applying the device.

(7) Tagout devices will include hazard warnings such as "DO NOT START", "DO NOT OPEN", "DO NOT CLOSE", "DO NOT ENERGIZE", and "DO NOT OPERATE".

b. Complete FC Form 1147-3, Location of Lockouts-Machine specific and retain for one year.

11-4. Full Employee Protection

a. Purpose.

To ensure that a tagout system protects employees. When using a tagout tag, attach the tag at the same point as a Lockout device. Activities using a tagout system rather than a lockout system much demonstrate to the FCSO that the tagout program will provide the same employee protection as a lockout program.

b. Policy.

Activities using a lockout system must comply with all requirements of the tagout standard. In addition to these provisions, other safety measures may be required to achieve the comparable level of protection. Such safety measures include the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the probability of inadvertently energizing the machine or energy source.

11-5. Energy Control Procedure.

a. Policy.

Procedures are to be developed, documented, and utilized for the control of potentially hazardous energy when employees are engaged in a maintenance and service operations covered by this standard. The required procedure for a particular machine will be documented unless ALL of the following elements exist:

(1) The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees;

(2) The machine or equipment has a single energy source which can be readily identified and isolated;

(3) The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment;

(4) The machine or equipment is isolated from that energy source and locked out during servicing and maintenance;

(5) A single lockout device will achieve a locked-out condition;

(6) The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;

(7) The servicing or maintenance does not create hazards for other employees;

(8) No accidents involving the unexpected activation or unexpected re-energizing a machine or equipment during service or maintenance.

b. Procedures.

(1) Complete FC Form 1147-2, and retain for one year.

(2) The procedures will clearly and specifically outline the scope, purpose, authorization, rules, and techniques used to control the hazardous energy, and the means to enforce compliance, including but not limited to the following:

(a) A specific statement of the intended use of the procedure;

(b) Training records;

(c) Specific steps for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy;

(d) Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices,, and other energy control measures.

(e) Specific steps to remove and transfer lockout devices or tagout devices and responsible person.

11-6. Periodic Inspection.

a. 29 CFR Part 1910.147

b. Policy.

The FCSO will inspect the energy control procedure at least annually to ensure program compliance. An authorized employee, other than the one using the energy control procedure, will inspect the Lockout/Tagout procedure annually. Supervisors will correct Lockout/Tagout procedure deviations and deficiencies immediately.

c. Procedures.

(1) Activities using a lockout system for energy control will periodically inspect the procedure. The inspector will review the procedure with the employees. The inspector will ensure, to his or her satisfaction, that the employees understand their responsibilities under the lockout program.

(2) The inspector will certify completion of the inspections by signing and dating the inspection forms. The certification will identify the following:

(a) The machine or equipment on which the energy control procedure was being utilized;

(b) Date of the inspection;

(c) Employees included in the inspection; and

(d) The person performing the inspection.

(e) Complete FC Form 1147 and retain for one year.

11-7. Training and Communication.

a. Purpose.

(1) Ensure that employees understand the purpose and function of the energy control program.

(2) Teach employees the skills required for safely applying, using, and removing energy controls.

b. Training Standards.

(1) Authorized employees must demonstrate that they know:

(a) How to recognize hazardous energy sources;

(b) The type and magnitude of the energy available in their workplace; and

(c) The correct energy isolation methods and how to correctly use the lockout and tagout devices.

(2) Affected employees must attend Lockout/Tagout training, but do not have to demonstrate their knowledge of Lockout/Tagout procedures.

(3) Supervisors will instruct employees that work near energy sources that require lockout or tagout on the procedure and the hazards.

(4) When tagout systems are used, employees will also be trained in the following limitations of tags:

(a) Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices which would be provided by a lock;

(b) When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated;

(c) In order to be effective, tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area;

(d) tags and their means of attachment must be made of materials, which will withstand the environmental conditions encountered in the work areas;

(e) Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program; and

(f) Securely attach tagout tags to the energy-isolating device.

c. Retraining Requirements.

(1) Supervisors will retrain authorized and affected employees whenever the employee's job assignment changes, a change in machines, new equipment or processes are introduced, or when the energy control procedure changes.

(2) Supervisors will provide their employees with refresher training whenever an inspection reveals problems in the employee's knowledge of use of energy control procedures. Supervisors will retrain whenever management believes that employees are deviating from the energy control procedures. Retraining will be used to re-establish employee proficiency and introduce new or revised control methods and procedures, as necessary.

d. Training Records.

Records of all training and retraining will be kept by the supervisor to certify training is being accomplished and kept up-to-date. The certification must contain each employee's name and dates of training. Complete FC Form 1147-7 and retain for one year.

e. Employee Notification.

The authorized employee or supervisor will notify affected employees before applying controls, and after removing them from the machine or equipment.

11-8. Application of Control.

a. Lockout.

The established procedure for the application energy control includes shutting down, isolating, blocking, and securing machines. implementation of lockout or tagout system procedures involves the following elements and actions and must be done in the following sequence:

(1) Preparation for Shutdown. The employee must thoroughly understand the type and magnitude of the energy, the hazards of the energy source, and the method or means to control the energy before turning off a machine or equipment.

(2) Machine or Equipment Shutdown. Turn the machine or equipment off. Shut down machines and equipment IAW the manufacture's instructions or an approved shutdown procedure.

(3) Machine or Equipment Isolation. All energy isolating devices will be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

(4) Lockout or Tagout Device Application. Only authorized employees may attach a lockout or tagout device to an energy-isolating device. Lockout devices, when used will be affixed in a manner that will hold the energy isolating device in a "safe" or "off" position.

(5) Tagout devices, where used, will be affixed in such a manner as to clearly indicate that the operation or movement of the energy isolating device from the "safe" or "off" position is prohibited. Where a tag cannot be affixed directly to the energy isolating device, it will be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

(6) Stored Energy. Following the application of lockout or tagout devices, all potentially hazardous stored or residual energy will be relieved, disconnected, restrained, and otherwise rendered safe. If there is a possibility of reaccumulation of stored energy until the servicing or maintenance is completed or until the possibility of such accumulation no longer exists.

(7) Verification of Isolation. Before working on locked-out or tagged-out machines or equipment, the authorized employee will verify that the machine is isolated and de-energized.

(8) Complete FC Form 1147-5, Lockout sequence, and retain for one year.

b. Release for Lockout or Tagout.

Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures will be followed and actions taken by the authorized employee to ensure the following:

(1) Machine or equipment. Employees will remove non-essential items from their work area and ensure that the machine or equipment components are intact.

(2) Employees. The employee will safely position or remove other employees. Before removing lockout or tagout devices and energizing a machine or equipment, notify affected employees.

(3) Lockout or tagout device removal. Only the employee who applied the lockout or tagout device any remove the device.

(4) If the employee who applied the device is not available to remove it, the device may be removed under the direction of the management official in charge but only by following the specific procedure below:

(a) Verification that the authorized employee who applied the device is not at the facility:

(b) Complete FC Form 1147-6 and retain for one year.

c. Additional Requirements.

In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions will be followed:

(1) Clear the machine or equipment of tools and materials;

(2) Remove employees from the machine or equipment area;

(3) Remove the lockout or tagout devices;

(4) Energize and proceed with testing or positioning; and

(5) De-energize all systems and reapply energy control measures to continue the servicing and maintenance.

d. Outside Personnel (Contractors, etc.)

(1) Whether outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the employee and the outside employer will inform each other of their respective lockout or tagout procedures.

(2) The employer will ensure that their employees understand and comply with restrictions and prohibitions of the outside employer's energy control procedure.

e. Certification.

The control of hazardous energy (lockout/tagout) standard requires documentation that certifies the effectiveness of the employer's Lockout/Tagout program. To satisfy the inspection certification. requirements, employers will use an inspection information form.

(1) Inspection or Periodic Inspection, FC Form 1147.

(2) Determination for Lockout/Tagout Procedures, FC Form 1147-2.

(3) Location of Lockouts-Machine Specific, FC Form 1147-3.

(4) Group Lockout/Tagout, FC Form 1147-4.

(5) Lockout Sequence, FC Form 1147-5.

(6) Restoring Machines or Equipment to Normal Preparation, FC Form 1147-6.

(7) Training, FC Form 1147-7.

11-9 Lockout/Tagout Inspection Procedure.

Complete this form during each Lockout/Tagout operation inspection. File the form in the safety inspection records. Inspection or periodic inspection (circle one)

Specify the machine or Equipment:

Date:

Authorized employee in charge of the operation being inspected.

Chapter 12

Confined Space Entry Permit Program

12-1. General.

This chapter incorporates OSHA standards. The hazards encountered and associated with entering and working in confined space are capable of causing bodily injury, illness, or death to the worker. Accidents occur because people fail to recognize that a confined space is a potential hazard. It should therefore be considered that the most unfavorable conditions exist in every case and that the danger of explosion, poisoning, and asphyxiation will be present at onset of entry. Danger still exists the entire time personnel are performing operation. OSHA established standards 29 CFR 1910.146 to address these hazards.

12-2. Purpose.

To specify procedures that will protect personnel who enter or work in confined spaces. Confined space is: "a space so enclosed that natural ventilation through openings in the enclosure is not sufficient to prevent or remove dangerous air contamination, means of egress is limited and space is not designed for continuous employee occupancy." Examples include: tank cars, tank trucks, vaults, tunnels, pits, manholes, boilers, bins, pipelines, sewers, ventilation ducts, exhaust ducts, and fuel pods.

12-3. Scope.

The requirements in this chapter are mandatory and are applicable to all military and civilian organizations on Fort Carson. Commanders and directors, who in the required work function, direct

workers to enter and perform work in confined spaces, will establish and implement written procedures (Entry Permit Program) for their organizations to meet the standards contained in this chapter.

12-4. Responsibilities.

a. General.

Commanders and directors will determine if their personnel must enter a confined space to maintain their equipment or facilities. These confined areas can contain physical hazards, atmospheric hazards, explosive atmosphere hazards, or toxic air contaminants. If their personnel must enter confined spaces, they will require their personnel to obtain an entry permit IAW this publication. Additional common hazards to keep in mind when evaluating the organizations confine work areas are:

(1) Toxic vapors, gases, or liquids.

(2) Flammable vapors or gases.

(3) Lack of oxygen, due to chemical action, presence of inert gages, or asphyxiating gases.

(4) Corrosive chemicals.

(5) Burns from steam, hot water, or heated equipment.

(6) Physical hazards such as those caused by improper entry and exit paths.

(7) Mechanical devices, such as agitator.

(8) Electrical devices, such as lamp and tool cords.

(9) Utility power sources, such as air, water, steam, electricity.

(10) Connecting vessels or spaces.

b. Change to a Confined Space Classification:

If a space that is not classified as a "permit required confined space" is changed due to a modification or a new or different process, that space will be reevaluated to determine if it has become a permit space.

c. Entry permits.

Commanders and directors will designate a qualified, trained individual to prepare the entry permit. This individual will be the entry supervisor. The entry supervisor will obtain an entry permit before allowing their personnel to enter a confined space. The supervisor will notify the FCSO after meeting the entry requirements, but before entry. Fort Carson Form 80 (Confined Space Entry Permit) will be used.

d. Fort Carson Safety Director.

The Fort Carson Safety Director will:

(1) Assist the organizations in the identification of confined space for the purpose of their confined space entry program requirements.

(2) Assist the organization in the establishment and implementation of their written confined space entry program.

(3) Advise and assist organizations in the required training of employees in the confined space entry program.

(4) Conduct safety inspections of confined space entry work sites.

e. Director, Health Services, MEDDAC.

The Director, Health Services will:

(1) Provide organizational work site inspections to assist in identification of permit entry hazardous work areas.

(2) Provide confined space entry site monitoring for required air tests per confined space entry permit.

f. Supervisors.

Supervisors will:

(1) Issue confined space entry permits.

(2) Provide personnel certified in first aid, CPR, and confined space rescue. When qualified personnel and equipment is not available, the supervisor will coordinate with the Fire Department to have these qualified personnel standing by at the entry site.

(3) Provide equipment necessary for confined space rescue.

(4) Provide confined space entry training for their personnel. Training will consist of confined space entry requirements as outlined in this chapter, equipment needed and its use for confined space rescue procedures.

(5) Responsible for the safe condition of equipment, tools, facilities, and work areas under their control.

(6) Ensure that their employees comply with the confined space entry program.

(7) Reporting confined space mishaps immediately.

g. All Personnel.

All personnel will:

(1) Understand the hazards of confined space entry, including the entry mode, signs, or symptoms, and consequences of the exposure.

(2) Perform their duties in a safe manner and comply with all current safety regulations, including Army, OSHA, and industry standards.

(3) Properly use and ensure the safe operational condition of equipment, tools, and work areas under their control.

(4) Report confined space entry mishaps to their immediate supervisor immediately.

12-5. Confined Space Entry.

a. Confined Space Entry (non-emergency and non-rescue).

No one will enter a confined space until completing the following procedures.

(1) Disconnect or block all pipes, lines, or other connections that may carry harmful agents into the confined space. The method used to block a pipe must assure complete closure. In continuous systems such as, but not limited to, sewers or utility tunnels, where complete isolation is not possible, written safety procedures to ensure employees safety and health will be developed and administered.

(2) Lock or tag fixed mechanical devices and equipment that are capable of causing injury resulting from either stored or released energy IAW the Lockout/Tagout Program.

(3) Test the atmosphere in the confined space for oxygen content, flammable or explosive agents, and toxic air contaminants.

(4) If any of the following conditions exist, ventilate and monitor the confined space until the conditions reach acceptable levels:

(a) The oxygen content of the atmosphere is less than 19.5%

(b) The flammable or explosive agents detected exceeds the LEL

(c) The toxic air contaminants exceed the limits established in the 29 CFR 1910 Subpart Z or in the NIOSH guidelines, ventilate the confined space until obtaining safe levels.

(5) If the oxygen content is below 19.5%, or toxic air contaminant levels cannot be eliminated by ventilation, or an alternative to ventilation, employees may only be allowed to enter a confined space under the following conditions:

(a) Confined Space Entry permit issued by the supervisor of the workers who will make the entry to conduct the work or the inspection.

(b) Anyone entering the tank must be equipped with a self-contained breathing apparatus (SCBA) or equivalent.

(c) A member or a team of the fire Department standing by with equipment necessary for emergency confined space rescue.

(d) When entering manholes, sewers, conduits, tanks, and underground chambers, a harness and lifeline will be used, supported by a minimum of two people outside to man the lifelines.

(6) Personnel will exit the confined space when the SCBA low air alarm sounds. Personnel will use the reserve air supply only for escape.

(7) Employees will not enter a confined space if the explosive or flammable agents exceed 25% of the LEL.

b. Communication.

Supervisors will make provisions for constant communications (visual, voice, or other means) between employees within the confined space and the attendants in the immediate vicinity outside the confined space. Any radio or other electronic means of communication must be of the type that meets the explosion proof standard.

c. Emergency Egress.

Personnel will use ladders or other safe means to enter or exit confined spaces exceeding four feet in depth.

d. Air Sampling and Testing.

(1) Lift stations, wet wells, dry wells, pits, digesters, gas metering rooms, and pipe galleries represent significant hazards such as gas build-up, flooding, oxygen deficiency, electrical shock, and physical injury. Multiple hazards exist in lift stations and other confined spaces. Ignorance and negligence have led to death by asphyxiation, fire, explosion, or by fatal exposure to toxic materials. Therefore, approach confined spaces in or near sewage treatment operations with extreme caution. Before entering lift stations, personnel must ensure that:

(a) Ventilation systems, if existing are functioning properly.

(b) Test the internal atmosphere for oxygen content, and then test for flammable agents, explosive agents, or toxic contaminants. Use an oxygen-gas analyzer according to directions provided with the analyzer. take initial samples inside the confined space as close to the work as possible while the employee remains outside. The sampler should be knowledgeable of the properties of hazardous gases and the need for sampling in various areas to which the gases might accumulate in different amounts. If the oxygen content is less than 19.5% or if the flammable or explosive agents detected exceed the LEL, or if suspected toxic contaminants are present, do not enter the space until the following conditions comply. If oxygen deficiency or toxic contamination levels cannot be eliminated, employees may be allowed to enter with: Confined Space Entry Permit, and appropriate self-contained respiratory protection in accordance with requirements of 29 CFR 1910.134.

(2) An employee trained in emergency rescue requirements, waiting near the entrance. If trained personnel are not available, a Fire Department observer or rescue team standing by and equipped for emergency confined space rescue.

(3) Use an oxygen-gas analyzer to continuously monitor the air inside the confined space while occupied.

(4) The supervisor will provide a method of constant communications with an outside attendant.

The attendant must not enter the space to attempt to rescue an unconscious or disabled person.

12-6. Confined Space Entry (Emergency).
Emergency and Rescue.
No employee, observer, or attendant will enter a confined space to rescue disabled employees. Check the permit requirements below. If an employee is disabled, the attendant must:

a. Contact the Fire Department immediately and inform them that an emergency confined space rescue is required.

b. Assess and inform Fire Department of the hazards and condition of the confined space noting:

(1) The material stored or used in the confined space.

(2) The primary activity of the confined space (i.e., gasoline storage tank, sewage lift station, electrical vault, etc.).

(3) The mechanical and electrical state of the confined space (i.e., lockout/tagout, liner ruptured, pump operating).

(4) The environmental conditions of the confined space (i.e., floors, dark, damp, etc.).

c. Contact immediate supervisor responsible for the employee's safety and the primary activity of the confined space.

NOTE: If an employer's permit entry program allows attendants entry for rescue, attendants may enter a confined permit space to attempt a rescue only if they have been trained and equipped for rescue operations and been relieved by another attendant.

12-7. Equipment.

a. Lifelines.
Personnel will wear an approved harness with a lifeline attached when entering the tank.

b. Lighting.
Use only the following approved methods to illuminate the interior of a tank or confined area:

(1) Vapor-proof flashlights.

(2) Reflecting type lights set up outside the tank, arranging the reflectors to illuminate the interior.

(3) Portable electrical lighting used in moist and other hazardous locations will not exceed twelve volts.

c. Hot Work.
Personnel will obtain a hot work permit before using a flame or a heat-producing device in or on a tank. Arrange for continuous monitoring of the atmosphere in the tank to detect a build up of combustible gases or a decrease of breathable oxygen while working inside the confined space. Do not take fuel-gas cylinders into a confined space.

d. PPE Requirements.

(1) Personnel cleaning, inspecting, or repairing will wear approved protective and rescue equipment, to include head and eye protection. Personnel will wear a respirator with a dust filter when working in a tank with a dust condition.

(2) When using volatile solvents or materials, such as adhesives, paints, clearing agents inside a tank, the personnel inside the tank must wear respiratory equipment designed for the solvent used and purging must occur.

e. Work Area.
Promptly remove scrap material and other materials or tools no longer needed. Account for tools, equipment, and materials after completing the work.

f. Tools.
Normally, use only pneumatic tools when working inside tanks or confined spaces. If an electrically powered tool is required, list the conditions and tools on the Confined Space Entry Permit.

12-8. Operations.

a. Policy.
Allow only the minimum number of persons to perform the task in the confined space. Purge, dry by venting with air, and analyze the air samples, all tanks that contained fuel, solvents, or other combustible material before commencing work.

b. Vertical tanks.
Because of the physical size of vertical tanks, complete water filling and neutralization is not always possible. The following rules apply to vertical tanks:

(1) Open all vents, manholes, and pipe openings and purge the space before entering the tank. Preferably, this should be an overnight period.

(2) Place a SCBA inside the tank close to an exit point near the work area. Also a safety harness with at least 100 feet of suitable rope (chain or cable if caustic material) will be at the job site and immediately available.

(3) When working on a scaffold, employees will wear a safety harness with a lifeline attached to the scaffold. One attendant will observe personnel inside the tank at all times. while another attendant will be available to assist in case of emergency.

12-9. Confined Space & Hazardous Area Entry Permit.

a. Policy.
The supervisor will initiate the Confined Space Entry Permit procedures.

b. Instructions for completing FC Form 80.

(1) Part 1. The supervisors, along with the safety officer, may complete part one at the procedure meeting. If more than one crew will enter

to perform the same job, the supervisor will obtain a permit for each crew shift and for each day the job continued.

(2) Part 2. The entry supervisor at the job site will complete the following of Part 2:

(a) outside supervisor(s)

(b) group leader

(c) type of crew (electrical, carpenter, metal worker)

(3) Part 3. Requirements completed before operation.

(4) Part 4. The IHO or other trained person will provide the information for this part to the entry supervisor.

(5) Results of tests taken before job entry. The tester will list all information on form, will list all other tests taken), list all instruments used for tests, and sign the form on the gas tester line provided.

(6) Part 5. List safety stand by personnel by job position and individual's name.

(7) The entry supervisor at the job site will list name of safety standby person if needed.

(8) The entry supervisor authorizing all the above conditions to his satisfaction will sign, date, and time before work start (each crew or shift permit).

(9) The Confined Space Entry permit will remain at the job site during the accomplishment of the work. Retain the original permit in the supervisor's files. The organization safety officer/NCO will retain a copy of the permit in the safety files. Retain permits for one year.

Chapter 13

Personnel Protective Equipment

13-1. General.

This chapter provides general guidance for identification of hazards that require the use of protective clothing and equipment to abate the hazard.

a. Reference.

AR 385-10, DA Pam 385-5, 29 CFR 1910, and CTA 500-900 authorize PPE for DA personnel. A chart for civilian personnel requiring PPE is at Appendix D. For military personnel who require PPE; refer to DA Pam 385-3, Protective Clothing and Equipment, and to the TM for the equipment being used.

b. Policy.

The FCSO may require the wearing of PPE on jobs other than those listed in this chapter or DA Pam 385-5. If there are any other questions regarding the application of these tables, of if assistance is required, contact the FCSO. The employer will assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of PPE. If such hazards are present, or likely to be present, the employer shall:

(1) Select, and have each affected employee use the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;

(2) Communicate selection decisions to each affected employee; and

(3) Select PPE that properly fits each affected employee.

(4) The employer will perform a workplace hazard assessment. The employer will certify the assessment in writing that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date of the hazard assessment; and what identifies the document as a hazard assessment certification.

c. Defective and Damaged Equipment. Personnel will not use defective or damaged PPE.

d. Training.

(1) The employer will provide training to each employee who must use PPE. Each such employee will be trained to know at least the following:

(a) When PPE is necessary;

(b) What PPE is necessary;

(c) How to properly don, doff, adjust and wear PPE;

(d) The limitations of the PPE;

(e) The care, maintenance, useful life and disposal of the PPE.

(f) Conduct annual PPE training requirements as required.

(2) Each affected employee must demonstrate an understanding of their HazCom training, and their ability to use PPE properly before performing the work that required the PPE.

(3) Employers will provide refresher training for employees that do not understand the requirements, or do not have the required skills. Circumstances where retraining is required include, but are not limited to situations where;

(a) Changes in the workplace render previous training obsolete, or

(b) Changes in the types of PPE to be used render previous training obsolete, or

(c) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

(4) The employer will verify that each affected employee has received and understood the required training, through a written certification that

contains the name of each employee trained, the date of training, and that identifies the subject of the certification.

13-2. Requisition.

a. Policy.

(1) Supervisors will provide their employees, who are authorized safety shoes, serviceable safety shoes at government expense.

(2) If a foot examination is not required, the supervisor will purchase safety shoes or boots with IMPAC credit card.

(3) Tenant units will comply with this publication to order safety shoes or boots.

(4) Supervisors will refer employees who, because of a foot problem, are unable to wear a standard safety shoe to the Directorate of Health Services and Occupational Health. Occupational Health will substantiate the need for a podiatry examination and, if required, schedule the employee to Podiatry services at EACH.

(5) If for any reason MEDDAC cannot give the examination and the individual uses a private physician, the employing unit will bear the cost of the examination. The medical examiner must cite the specific footwear requirements in the prescription. The Occupational Health Office must validate the prescription before requesting safety shoes. Supervisors will comply with paragraph 13-2a(2) or 13-2a(3) to order safety shoes or boots.

b. Obtaining Safety Glasses.

Refer to the IMPAC credit card SOP.

c. Prescription Eye Wear, Civilian.

Obtain a doctor's prescription from MEDDAC through the Occupational Health nurse. If for any reason, MEDDAC cannot give the examination and the individual used a private physician, the employing unit will bear the cost of the examination.

d. Prescription Eye Wear, Military.

Make an appointment for a visual examination before ordering safety glasses. Garrison personnel will make appointments through the TriCare appointment system.

e. Disposition.

(1) Employee will return PPE, except prescription eyeglasses and footwear, to the unit or activity property control office for storage and reissue. Destroy unneeded PPE IAW appropriate directives. Emphasize supply conservation.

(2) Refer to Appendix D to determine the PPE requirements. This equipment provides the protection necessary for the safety of Fort Carson personnel. Wearing of this equipment as prescribed, is a condition of employment.

(3) Supervisors will issue eye and face protection to their employees who work in areas where these hazards exist.

(4) The top section of this table lists the protective equipment needed for the various tasks. The "R" square that is common to a task and an item of protective equipment indicated that this equipment is recommended for use while performing that task

(5) No one will modify the requirements specified by this table without the written approval of the FCSO.

(6) Requests for new items of protection not covered in this table will require in writing the concurrence of the FCSO and the approval of the Commander before purchase.

(7) Supervisors will certify the protection requirements for subsequent issue of special PPE.

(8) Personnel required to perform any of the above tasks on a temporary basis and visitors to these operations will be issued temporarily the appropriate equipment i.e., cover goggles, toe guards, hard hats, etc.

(9) Unit and activity SOPs will specify the PPE requirements for ammunition, radiation, and other high hazard operations.

(10) Personnel will use respirators approved for use in Asbestos dust areas.

(11) The IHO will select the respirator based upon workplace samples.

(12) Personnel working on platforms at twenty feet or more above the ground or floor will wear approved fall arresting equipment.

13-3. Hearing Conservation Program.

a. Purpose.

To prescribe policies and procedures for the controls of noise hazards and the prevention of noise included induced hearing loss from occupational exposure among soldiers and civilian personnel. Refer to DA Pam 40-501 and FC Reg 40-20 for the program requirements.

b. Applicability.

All eligible military and DA civilian employees assigned, attached, or employed at Fort Carson.

c. Policy.

Hearing loss prevention is:

(1) Identifying noise hazard areas;

(2) Posting noise hazard areas and equipment with the appropriate caution signs;

(3) Engineering control measures;

(4) Hearing protection devices; and

(5) Testing personnel who work in noise hazard areas for hearing loss.

d. Standard.

Personnel working in a noise hazard area will wear hearing protection device capable of reducing the noise exposure to less than 85 decibels. The assistance of the MEDDAC Occupational Health will be solicited in designating noise hazardous areas and in determining the type of hearing protection that is required to be worn.

13-4. Occupational Vision Protection Program.

a. Purpose.

To establish a comprehensive Occupational Vision Program that is applicable to all employees to assure the proper utilization and preservation of eyesight. The 29 CFR 1910.33, TB MED 506, and FC Reg 40-17 contain the program requirements.

b. Applicability.

All eligible military and DA civilians at fort Carson.

c. Policy.

Commanders will ensure that the FCSO, or other technically qualified personnel, determine the eye hazards analyze each operation. SOPs will reflect the result of such operating analyses by including safety spectacles (prescription and plano) to prevent injury. Conduct continuous studies to maintain maximum safety standards IAW TB MED 506 and FC Reg 40-17.

13-5. Eye and Face Protection.

Personnel will wear safety eye wear (Plano or prescription) when in an area when hazardous chemicals or air contaminants such as foreign particles, gases, and vapors, are present. Supervisors will identify each eye hazard area and require personnel entering the area to wear the suitable PPE. Refer to AR 40-5 and AR 40-63 to determine the eye protection requirements.

a. General Requirements.

(1) Each affected employee will use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids, or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

(2) Each affected employee will use eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (i.e., clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

(3) Employees who require corrective lenses and who work in eye hazard areas will wear eye protection that: incorporates the prescription in its design; or that fits over their prescription lenses without disturbing them and does not reduce the protection from eye hazards.

(4) Eye and face PPE will be distinctly marked to facilitate identification of the manufacturer.

(5) Each affected employee will use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation. The following is a listing of appropriate shade numbers for various operations.

b. Criteria for protective Eye and Face Devices. Protective eye and face devices purchased after 5 October 1994 will comply with ANSI Z87.1. Eye and face protection devices purchased before 9 October 1994 will comply with the ANSI Z87-1 or will be demonstrated by the employer to be equally effective.

13-6. Foot Protection.

All personnel exposed to foot hazards because of their occupation will wear safety shoes. Accidental falling of stacked materials, the possibility of cartwheel, lawn mowers, towed vehicles, and forklifts running over feet are foot hazardous occupations. Workers exposed to these types of hazards for more than 25 percent of the work time must wear foot protection. Tow guards are adequate for personnel exposed to foot injury hazards 25 percent of the time or less. All protective footwear will comply with ANSI Z41. Final determination of requirements to wear safety protection will rest with the FCSO.

13-7. Head Protection.

Personnel working in areas where falling or flying objects may cause injury will wear protective headgear. Examples of duties requiring head protection are: working along and under steep cliffs or slopes, working around crane devices, hoisting devices, under scaffolds and overhead structures performing installation, and maintenance work on electrical power lines. Bump caps are recommended for confined space or areas where workers may be subject to minor injury from bump hazards, but when there is no danger of severe blows from falling or flying objects.

a. General Requirements.

(1) Each affected employee will wear protective helmets when working in areas where there is a potential for injury to head from falling objects. Each employee will be instructed on the proper use, limitations, and fitting of the hard hat.

(2) Each such affected employee will wear protective helmets designed to reduce electrical shock hazard when near exposed electrical conductors that could contact head.

b. Criteria for Protective Helmets.

(1) Protective helmets purchased after 5 October 1994 will comply with ANSI Z89, "American National Standard for Personnel Protection-Protective Head Wear for Industrial Workers-Requirements."

(2) Protective helmets purchased before 5 October 1994 will comply with the ANSI standard "American National Standard Safety Requirements for Industrial Head Protection," ANSI Z89.1, or will be demonstrated by the employer to be equally effective.

13-8. Respiratory Protection.
Obtain assistance with selecting respiratory protection equipment from the MEDDAC Preventive Medicine Industrial Hygiene Section.

13-9. Electrical Protection.
Personnel performing electrical work will use lineman's rubber gloves, belts, electrical hazard footwear, insulated Class A or B hard hats or caps, rubber blankets, line hoses, and hot line tools when required. Supervisors will ensure that their personnel properly maintain and periodically test their equipment.

13-10. Hand Protection.
Personnel working with sharp edged objects, rough abrasive materials, corrosives, caustics, hot substances, etc., will wear gloves to reduce exposure to hand injury. Do not wear gloves near running machinery.

13-11. Fall Protection.
Personnel will wear safety belts, safety harness, life lines, or use nets as required by 29 CFR 1910 and 1926.

13-12. Traffic Protection.
Personnel performing duties as MP, spotters, and ground guides exposed to vehicle traffic will wear appropriate reflective clothing and use flashlights or chemical light-sticks during reduced visibility.

13-13. Welders.
Personnel working with electrical arc welders and other cutting and hydrogen welding devices will wear helmets, shields, or insulating materials not readily flammable to protect head and hands from injurious radiant heat. Personnel working with or near gas welding, cutting, brazing, and similar operations will wear PPE designed to protect against the sparks, intense heat, and ultraviolet radiation produced by welding. Individuals will not wear contact lenses. Supervisors will enroll their welders into the Occupational Health Surveillance Program.

13-14. Severe Weather.
Supervisors will not obtain or issue PPE based solely upon the possible exposure to extreme weather. To be authorized PPE; the scope of employment must require the employee to be on duty regardless of the weather and, in many instances, as a direct result of the extreme weather conditions. Personnel exposed to extreme weather only occasionally, or for short periods (less than two hours), do not meet the criteria that authorized PPE for extreme weather. Refer to TB MED 81 and TB MED 507 for program implementation.

13-15. Physical and Biological Hazards.
Individuals exposed to these hazards will wear appropriate PPE. supervisors will request an evaluation of their work areas where chemicals, paints, varnishes, acids, gases, toxic fumes are present to determine the need for PPE. Supervisors will provide personnel exposed to these hazards with PPE that will protect their personnel without charge.

13-16. Motor Vehicle Protective Equipment.

a. Reference.
Prevention of Motor Vehicle Accidents, AR 385-55 contains requirements for military and civilian personnel who operate motor vehicles.

b. POVs

(1) Military personnel and civilians riding in private motor vehicles on a government installation, and operators and passengers in government motor vehicles on or off a government installation will wear seat belts if installed.

(2) The vehicle operator is responsible for informing passengers of the seat belt requirement. The senior occupant is responsible for ensuring enforcement.

(3) Civilian employees, when it is not clear who is the senior occupant, the driver is responsible for enforcement.

(4) MP personnel will continue to check for compliance with this policy. The PMO will send commanders the names of personnel they cite for failure to wear seatbelts.

(5) Commanders will ensure that their personnel are aware that they must wear seatbelts when operating a motor vehicle.

c. Motorcycles.
IAW AR 385-55, protective equipment and clothing will be worn for:

(1) Military personnel will wear a properly fastened approved helmet on or off post when they

operate or ride as a passenger on a motorcycle or moped.

(2) Military personnel will, when operating or riding a motorcycle wear:

(a) DOT approved helmet;

(b) Proper eye protection;

(c) Full-fingered gloves;

(d) Long trousers;

(e) A long-sleeved shirt or jacket.

(f) High-visibility garments (bright color for the day and reflective for night); and

(g) Leather boots or over-the-ankle shoes.

(3) Civilian personnel will wear a DOT approved helmet while operating or riding a motorcycle. They will wear the same PPE as military personnel when they are on a military installation or while on government business off the installation.

d. Headphones or Earphones.

Personnel will not wear headphones or earphones while operating a POV, bicycle, motorcycle, or moped on Army installations.

e. Jogging on Post.

Individual joggers on the post will wear a reflective material during the hours between sunset and sunrise. During periods of daytime reduced visibility (fog, rain, or snow) joggers are encouraged to wear a high visibility garment to assist vehicle drivers in seeing them. Jogging on roadways, joggers will run facing approaching traffic and will yield right-of-way to all traffic on the roadway. Personnel will not wear headphones of earphones while jogging.

f. Bicycles.

A protective helmet that meets ANSI standards is mandatory. See FC Reg 190-5. Commanders will encourage bicycle operators to wear high-visibility garments (reflective vest).

g. Seatbelts.

The PMO will enforce vehicle seat belt and protective equipment use for personnel operating vehicles on post.

Chapter 14

Safety Boards.

Safety boards are required in electrical, electronics, and avionics maintenance shops. Battalion and squadron sized units having a MTO&E or TDA authorized repair and testing capability and test benches will also maintain a safety board IAW TB 385-4. Separate company, battery, or troop-sized units other than indicated above is not required to maintain a safety board. When repair and testing capability exists, they must maintain a safety board.

Chapter 15

Chemical Agent Resistant Coating(CARC)

15-1. References.

The following references explain the CARC painting process and provide methods of spot painting using CARC: TB 43-0242, AR 750-1, para 4-41, and FC Reg 385-1, Appendix D.

15-2. Spray Painting.

Unit-level maintenance shops may not spray paint. The only approved spray painting facility is the spray booth at G4/DOL, Bldg 8000. EXCEPTION: Use of aerosol containers of CARC paint is permitted at unit level.

15-3. Spot Painting.

Units may spot paint vehicles IAW AR 750-1. The inside of the vehicle is considered a confined space, and will only be accomplished using respirator equipment approved and fit tested by the MEDDAC Preventive Medicine Industrial Hygiene Section.

15-4. Brush and Roller Painting.

Brush and roller painting can be completed inside motor pool facilities if the work area is eight bays or larger and a minimum number of personnel are in the area. Do not enter these areas during painting or drying of painted vehicles.

15-5. Indoors.

When painting inside, use a fitted cartridge respirator with organic cartridges, cotton coveralls, and rubber gloves. When painting outside, use cotton coveralls and rubber gloves.

15-6. Drying.

Dry painted vehicles inside facilities eight bays or larger. Dry vehicles in the evening, over the weekends, or when no one is in the facility.

15-7. PPE Requirements.

Use the PPE chart in Appendix D of this publication to determine the PPE requirements.

15-8. Hazardous Waste.

Discard unused CARC paint as Hazardous Waste IAW AR 420-47 and FC Reg 200-1.

15-9. Welding.

Weld on base metal only. Clean painted surfaces to the bare metal at least three inches around area before welding.

15-10 Sanding and Grinding Operations.

Sanding and grinding less than one-foot square area does not require the use of personnel protective

equipment. Sanding and grinding greater than one-foot square area requires the use of cartridge respirators with HEPA cartridges and cotton coveralls.

Chapter 16
Jack Stands

16-1. Requirement.
IAW TB 43-0142, jack stands are considered a lifting device. In addition to the requirements of TB 43-0142, personnel will inspect jack stands IAW the checklist below before each use.

16-2. Inspection Checklist.
a. Inspect all welded or riveted joints and connections of base assembly.
b. Inspect ratchet and pawl assembly for free operation and locking action.
c. Inspect axle seat assembly for damage, bent parts, and completeness of retainers at each end of the axle seat.
d. Check the capacity and stencil it on the item.
e. Stencil jack stands, floor jacks, and lifting devices with the month and year that the inspection expires.
f. Visually inspect other work stands, such as those used in aviation maintenance activities, daily before use.

Chapter 17
Motorcycle Safety

17-1. Army Motorcycle Safety Course.
Motorcycle operators must successfully complete an applicable rider and operator safety course that includes a Motorcycle Safety Foundation (MSF) or Specialty Vehicle Institute of America (SVIA) approved curriculum. The course must include hands-on training and a performance-based evaluation such as the Army Motorcycle Safety Course. Additional performance based evaluation may be required for off-road recreational operation of aforementioned POVs or vehicles controlled by morale, recreation, and welfare organization on DOD installations. Enforcement of attendance at the motorcycle course and use of PPE will be by each unit or directorate. Commanders and directors will ensure that their personnel contact the FCSO for scheduling information.

17-2. License Requirements.
Operators of privately owned motorcycles that operate on DOD installations, must be licensed by civil authorities to operate on public highways, except where not required by Status-Of-Forces Agreement or local laws. Where state or local laws require special licenses to operate privately owned motorized bicycles (MOPEDs), motor scooters, and all-terrain vehicles (ATVs), such license requirements, as a minimum, will apply to operation of those vehicles on DOD installations.

17-3. PPE Requirements.
All personnel operating or riding a motorcycle, motor scooter, or MOPED on DOD installation, and military personnel off of the installation will wear the following PPE:
a. DOT approved helmet properly fastened under the chin.
b. Leather boots or over-the-ankle shoes, high visibility garments (i.e. vest or jacket), full-fingered gloves, long-legged trousers or pants, and long-sleeved shirts or jackets, impact or shatter resistant goggles or full-face shield attached to helmet. Operator may not substitute windshield or fairing for proper eye protection.
c. Failure to Comply. Commanders may consider the failure to wear the required PPE or failure to comply with licensing or operator training requirements as not in the line of duty.

Chapter 18
Colorado Highway 115

18-1. General.
This chapter establishes policy on the use of Colorado Highway 115 by tactical and M-series military vehicles. Restriction of tactical military traffic on Colorado Highway 115 is necessary to minimize military vehicle exposure to high density civilian traffic, hence reducing civilian or military accidents. Do not use Highway 115 as an access route to and from training areas, except as follows:

18-2. Applicability.
This chapter does not apply to the administrative use vehicles controlled by the Transportation Division, G4/DOL, commercial, and military vehicles controlled by the post service-engineering contractor.

18-3. Policy.
The operator will have a written authorization bearing the signature of the person granting permission with the vehicle or the convoy commander will carry the document during convoys. Authority to permit single vehicle use of Highway 115 is as follows:
a. One time (nonrecurring) use may be authorized by commanders and staff officers in the

rank of LTC or above, or those in the rank of Major who are acting in the LTC position because of the official absence.

(1) Vehicles carrying LTC or above need no written authorization for travel on Highway 115.

(2) Vehicles not transporting LTC or above but authorized to use Highway 115, will have a LTC's signature in the remarks block of DA Form 2400.

b. Colonels and above may authorize recurring use for specific missions. Retain the document in the logbook or in the unit files. If retaining the document in the unit files, annotate the location in the "Remarks" section of the dispatch form.

c. Discretionary use of military vehicles of 1 1/4 ton capacity or less is authorized for members of the command group, the Field Officer of the Day (FOD), and commanders and staff officers in the rank of Major or above.

d. Emergency response vehicles may use Highway 115.

18-4. Convoys.

Military convoys may use Highway 115 only when a clearly defined military needs exists. The commander must submit a memorandum through G3/TNG and the Garrison Commander to the Chief of Staff for approval. Military convoys will enter Highway 115 only when military and civilian police support are present.

Chapter 19

Unit/Activity Safety Program Standing Operating Procedure

19-1. Requirements.

a. Each military unit and civilian activity is required to have a written SOP for safety and high risk operations. These operations include, but are not limited to:

(1) Tactical safety
(2) Convoys
(3) Fire prevention program
(4) Firing exercises
(5) Ammunition, explosives, and pyrotechnic safety
(6) Water hazard survival training
(7) AMV and ACV operations
(8) POV operations
(9) Maintenance activities
(10) Job hazard analysis
(11) Hearing and occupational vision protection
(12) Personal protective equipment
(13) Multi-piece wheel servicing
(14) Confined space entry permits
(15) Lock-out tag-out procedures
(16) Risk management
(17) Hazard communication (HAZCOM)
(18) Safety inspections
(19) Safety councils
(20) Radiation protection
(21) Accident reporting and investigation

b. Commanders, directors, and supervisors at each level will establish and maintain a continuing, comprehensive, and effective accident prevention program throughout their organizations. Unit/activity SOPs need not be lengthy, but they must reflect the commander's or supervisor's approval/signature of their accident prevention program direction. See figure 19-1 for a sample safety SOP.

Sample Safety SOP

1. PURPOSE. To ensure a continuing, effective accident prevention/ safety program throughout this unit/activity.

2. REFERENCE. AR 385-10, Army Safety Program, and Fort Carson Regulation 385-1.

3. SCOPE. This SOP outlines the organization of the unit/activity safety program and the responsibilities of personnel implementing the safety program.

4. OBJECTIVE. To improve the overall effectiveness of the unit/ activity by minimizing personnel and equipment losses.

5. RESPONSIBILITIES. The commander or director is responsible for assuring that the accident prevention effort meets the requirements of current regulations. The following personnel are responsible as indicated:

a. Commander and director will:

(1) Provide staff management of the unit/activity safety program to ensure safety requirements are in compliance.

(2) Integrate current safety requirements into all training activities, operations, and plans.

(3) Ensure training of personnel is adequate for safe operation of equipment to avoid injury or equipment loss.

b. Supervisors will:

(1) Ensure necessary protective clothing and equipment is on hand within the unit/activity as required for daily operations.

(2) Ensure all operations are conducted safely.

c. Unit Safety Officer/NCO or Safety Representative will:

(1) Brief the commander/director as needed on the status of the unit/activity accident prevention effort.

(2) Establish and maintain a portion of the unit/activity bulletin board which provides current safety literature and information.

(3) Make periodic inspections of training, repair, and maintenance activities within the unit/activity and initiate action to correct the hazards or deficiencies detected. Keep records to document inspections.

(4) Investigate or coordinate investigation of accidents which occur within the unit/activity. Prepare accident report when appropriate.

(5) Conduct periodic safety briefings for organizational personnel. Present initial safety briefing to newly assigned individuals.

(6) Prepare safety briefing guide for commander/director's use when necessary and/or prior to holiday periods or weekends.

(7) Establish and maintain an accident case file for all accidents during the current and preceding fiscal year.

(8) Schedule unit/activity personnel to attend the Motorcycle Safety Course.

(9) Review accident reports for completeness and send to the Installation Safety Office for further action.

d. Motor officer will:

(1) Ensure unit/activity drivers are thoroughly trained prior to licensing for operation of military vehicles.

(2) Conduct safety briefings and refresher training of unit/ activity drivers.

(3) Establish safe operating procedures for motor pool operations and provide enforcement measures.

e. Leaders and supervisors will:

(1) Establish in writing a unit/activity safety SOP for specific operations.

(2) Enforce the procedures established.

6. ACCIDENT REPORTING. All accidents involving personnel from the unit/activity, which result in injury to personnel or damage to property, will be reported expeditiously to this organization. Pending the arrival of the Unit Safety Officer or Representative, the supervisor of the injured person will begin an investigation to determine why the accident occurred. When the safety officer/representative arrives, all information collected will be given to that individual for completion of the investigation and the preparation of the accident report.

7. UNIT/ACTIVITY SAFETY COUNCIL OR COMMITTEE. The unit/activity safety council or committee shall consist of all members of the organizational staff to include the Unit Safety Officer/NCO or Representative and shall be operated in conjunction with regularly scheduled staff meetings. Problems concerning safety shall be discussed and resolved on a routine basis during these meetings. The safety officer/ representative shall provide documentation of actions as needed.

8. SAFETY AWARDS. Personnel who actively support and contribute to the unit/activity safety program will receive special recognition. Managers will identify supervisors, leaders, drivers, and other individuals who are deserving, and recommend them for recognition and award as appropriate.

Chapter 20.
Marching on Roadways.

20-1. General.
All roadways on Fort Carson are available for use by units for marching except those through or adjacent to housing areas.

20-2. Responsibilities.

a. Provost Marshall Office (PMO).
The PMO will enforce those provisions of this publication that fall within the scope of traffic regulations. The PMO will provide traffic control assistance as requested by major units for mass formations, provided support does not disrupt normal MP operations.

b. Senior Soldier.
The senior soldier present in marching units is responsible for the safety and conduct of that unit, whether directly in charge of the formation or not. The senior soldier will place additional road guards as needed to assist in traffic control at intersections.

20-3. Procedures.

a. Marching.
Units will march in column no more than three abreast. Only one person may march to the left of the formation. Subordinate leaders will march at the front or rear of the formation. A unit will use not more than one-third of the hard surface of roadways and will march with the traffic. Units will double time when crossing major intersections to reduce traffic delays and potential hazards.

b. Road Guards.
Position road guards as appropriate at road crossings in sufficient time so as not to present a hazard to traffic, the guard, or the unit. Road guards will wear reflective vests. Equip road guards for mass formation marches by major units with flashlights, batons, red filter lens, or chemical light sticks during periods of limited visibility.

Chapter 21

Field Safety Guide

This chapter applies to all units and activities assigned to or training at Fort Carson, Pinon Canyon Maneuver Site (PCMS), and while training at the National Training Center (NTC). The senior commander will resolve conflicts with guidance provided by the host installation.

21-1. Sleeping Areas.

a. Policy.

Commanders will designate sleeping areas. Personnel will not sleep in any other area.

b. Standards.

(1) Select sleeping areas protected by natural obstacles such as hills, rocks, or trees or;

(2) Enclose the area with white marking "Engineer" tape or concertina wire with strips of marking tape tied to the wire; and

(3) If lights will not interfere with the training, mark the perimeter of the sleeping area with lighting devices such as chemical light sticks.

(4) All sleeping and eating areas will be located in areas that do not encourage vehicle movement within or through the assembly area or defensive positions. Do this by properly selecting a sleeping area. Pick an area that is a safe distance away from traveled areas and be especially alert to likely vehicle approach paths. Normally, the company sized assembly areas should have only one entrance point.

(5) Commanders will not allow sleeping on the ground, under, or around AMVs or ACVs.

(6) Ensure positive control during passage of lines.

(7) Perimeter guards, outposts, and other dismounted troops must ensure that one member remains awake and alert to the area around them. Provide them with nighttime signal devices that ensure that they can warn any approaching vehicle of their presence, such as flashlight with a red lens or a chemical light stick. Inform them that the light will move horizontally back and forth, which is the recognized signal to stop. Wake personnel when they hear a n engine or note vehicle movement, that they must alert other sleeping soldiers.

(8) Bivouac areas should not be located in low areas. Rain showers can cause water walls up to 5 feet in height to suddenly rush down gullies, arroyos, wadis, and ditches.

(9) Take heed that guidance for exercises at various locations may be specific in terms of when personnel will sleep and will take precedence when unit is at that training location.

(10) If possible, assign a number to each platoon member. Before movement during darkness or limited visibility, each platoon member will sound off their assigned number. Do not move until all personnel respond/are accounted for.

21-2. Vehicle Operations.

a. Ground guides.

(1) Before the starting of any vehicle, a member of the crew is to walk completely around the vehicle (circle of life) to ensure no one is in danger when the vehicle is moved.

(2) Use ground-guides in troop areas.

(3) When moving a vehicle with a ground guide, the driver will maintain a safe distance (ten meters) form the ground guide at all times. Consider the terrain, weather, and speed establishing the distance. However, ground guides will never run or walk backwards while ground guiding vehicles. Ground guides will not walk directly in front of the vehicle but will position themselves to the front and to the side.

(4) During movement within or through an assembly area, track vehicles will require ground guides front and rear. Guides must be able to see each other, and one must be visible to the driver. Wheeled vehicles will normally require one ground guide; however, two guides will be used when backing a wheeled vehicle (1 1/4 ton or larger) or when vision is restricted. Only one guide will signal the operator directly. If the operator does not understand the signal, the operator must stop immediately and wait until he fully understands the directions. When being guided by a flashlight at night, the operator will stop immediately if the light goes off.

(5) Refer to FM 21-305 and FM 21-306 for more information on ground guide procedures for AMV and ACV operation. Emphasize these procedures during FTX safety briefings. The senior vehicle occupant is responsible for the safe operation of the vehicle.

(6) Tracked vehicles will have a dismounted road guard and ground guide when crossing railroad tracks, paved roads, state highways, or any road where the speed limit is posted 20 miles per hour or more. Before crossing railroad tracks, the ground guide will remove hearing protection (earmuff or earplugs) so he can take maximum advantage of the "stop, look, and listen" safety rules. Ground guides will wear a reflective vest and during the hours of darkness will use a flashlight or a chemical light stick.

b. Blackout drive.

(1) Vehicle operators involved in night driving under blackout conditions will receive the following training:

(a) One hour of classroom work, and

(b) Four hours (two hours of observer and two hours of driver) of night vehicle operation training.

(2) On Fort Carson, all operators (except Heavy Equipment transports when designated) of vehicles south of the light line will drive with blackout drive IAW procedures outlined in FC Reg 385-63 during hours of darkness. Personnel will not use blackout lights on roads open to the public.

(3) Administrative type vehicles, such as those operated by DPW or Range Control, will not operate beyond the light line unless modified. Train operators in blackout driving techniques. Attempt to minimize the need to operate tactical vehicles using blackout drive.

(4) Service drive may be utilized south of the light line during the hours of darkness, under emergency conditions, such as ground evacuation of seriously injured personnel or personnel investigating a Class A or B accident.

(5) Driver training for all units at Fort Carson will include mandatory instruction on blackout driving techniques and precautions IAW AR 600-55, FM 21-305, and FM 21-306. Include what the operator should do when encountering a vehicle using service drive lights.

(6) The speed limit for all vehicles operating beyond the lithe line during the hours of darkness is ten mph, except for emergency vehicles.

(7) Inspect the blackout lights before each FTX.

(8) Planners must include the route reconnaissance, marking, identification, and operator briefing, especially when using blackout drive.

(9) Vehicle operators required to use NVGs will be trained qualified using guidance of TC 21-305-2.

c. Night Vision Device (NVD) Operations.

(1) Driving with NVDs will be IAW AR 600-55, FM 21-305, FM 21-306.

(2) Provide refresher training when a motor vehicle operator has not completed the NVG driving task during the past six months.

(3) Document initial and refresher NVG training on the operator's DA Form 348/-E. Annotate the Optional DA Form 5984/-E to show the operator's device rating.

d. Wheeled Vehicles.

(1) Only qualified personnel, who are properly licensed, will drive government vehicles. It is imperative that commanders at all levels closely supervise vehicles operators to ensure strict compliance with sound safety practices and to detect fatigue, sickness, or other factors which may impair the vehicle operator's ability to drive (See AR 385-55). Commanders will appoint an assistant driver for each vehicle.

(2) Drivers will not operate an AMV or ACV for more than 10 continuous hours during any 24-hour period.

(3) The operator will place the highway warning markers when vehicle is stopped on a road.

(4) No personnel will ride outside of any wheeled vehicle, unless approved by exception by the MSC commander. Personnel will sit when riding in a truck cargo area to avoid wires strung across roadways and tree branches. This also will prevent personnel from falling out of trucks in case of rough roads, etc. Those vehicles not equipped with seats refer to AR 385-55 for guidance.

(5) Operators will tie down antennas when operating North of the light line and in the cantonment area. Antennae tips will be covered with a protective ball (NSN 5985-00-930-7223 or NSN 5820-437-2353). The top on antenna should be no more than 13 feet and no less than 8 feet off the ground.

(6) Wheeled vehicles must have adequate chocks when parked on an incline. To ensure chocks are available, each vehicle will carry chocks as part of the vehicle BII.

(7) Fasten the restraining strap across the tailgate of trucks when passengers are riding in the back of the truck.

(8) No smoking in the vehicle. Personnel will not smoke within 50 feet of any vehicle transporting ammunition, gasoline, or other fuels. This same rule applies to storage areas containing these items.

(9) Personnel riding in vehicles in which the driver is required to wear hearing protection will also wear hearing protection.

(10) Drivers will comply with posted speed limits, whether operating on or off the military reservation (FC Reg 190-5).

(11) Convoy commander will brief all drivers and assistant drivers and senior occupants before each road march in hazardous areas on conditions to be encountered such as safe following distances, proper speed, catch-up speed, route, rest periods, signals, etc. Extend the interval distance as needed to adjust to poor road conditions.

(12) When operating vehicles that do not have a windshield or when operating the vehicle with the windshield down, drivers will use eye protection.

NOTE: Sunglasses do not meet this requirement. The use of deflector boards installed in tactical vehicles with windshield glass removed (NTC) will not exceed 5 1/2 inches in height. The driver and TC must be able to see the end of the hood while sitting in a normal position. Personnel will not use Plexiglas, acetate, or other material to replace windshield glass.

(13) Operators will ensure that their passengers use seatbelts except during operations in water.

(14) Troops traveling to, during, and from a field environment will wear helmets while riding in a vehicle. Securely fasten helmet chin straps.

(15) Only three people may occupy vehicle cab if the gearshift lever is on the steering column. Only two people may occupy a vehicle cab when the gearshift lever is on the floor of the vehicle. When a vehicle is equipped with seat belts, the number of occupants in the driver compartment will not exceed the number of seat belts provided.

(16) The senior occupant of the vehicle will ensure that the number of personnel onboard does not exceed the authorized seating capacity of the vehicle.

(17) Use tire chains to increase traction on wheel vehicles when the commander deems it necessary. Use caution when using chains on fuel-transport vehicles. Remove tire chains before operating on dry pavement.

(18) Check trailers for proper light and brake operation.

e. Tracked Vehicles, other than Tanks.

(1) To enhance observation, vehicle commanders and drivers sometimes are required to travel with hatches and cupolas open. If using this procedure, take care to prevent injury from low branches, wire, or dust and rocks. Securely lock the hatch cover and check the safety pin.

(2) No personnel or crewmembers will ride on the outside of tracked vehicles, except when required for training. Generally, no part of the body below the shirt pocket flap should be visible outside the vehicle while the vehicle is in operation.

(3) Before dispatch, tracked vehicle drivers and crews will be oriented on road conditions, weather, proper clothing, speed, and local hazards by the track commander.

(4) Instruct drivers to use care when shifting gears, so they do not engage the reverse gear before completely stopping. Many cases of inadvertent shifting of gears into reverse while the vehicle is in forward motion have resulted in serious injuries to personnel in the vehicle.

(5) Mounting and dismounting. This should be done in the safe manner approved for each type of vehicle. Refer to the operator's manual.

(6) Do not operate tracked vehicles if the intercom does not work. The commander may authorize an operator to move an ACV with an inoperative intercom as long as a ground guide guides the vehicle during the entire movement.

(7) ACV crewmembers will wear their CVC while operating or riding in their vehicle. Passengers will wear their Kevlar helmet while entering, onboard, and when exiting.

(8) All personnel will wear hearing protection when operating or riding in an ACV.

(9) When repairs require working over a running engine, remove helmets to prevent any possibility of a helmet falling into the engine compartment.

(10) Personnel will remain one and one-half the cable length away from a cable used for towing or lifting while the cable is in use.

(11) Both crewmembers and passengers will wear their seat belt during vehicle movement.

(12) The TC will brief the crewmembers and passengers on emergency procedures for rollovers and river crossings. Rollover drills will be conducted prior to each and every vehicle movement.

(13) Recovery crews will use tow bars, rather than cables, when towing a vehicle, unless a tow bar is impractical.

(14) Personnel will not stand between vehicles during slave cable starting.

(15) Crewmembers will secure all equipment in the vehicle.

(16) Store personal equipment, especially combustible materials, away from gas heaters and exhaust pipes.

(17) Some vehicles must be towed from the rear, making it necessary to assure temporary warning lights, which will denote running taillights or clearance lights are placed on the front of the towed vehicle. Never use the disabled vehicle headlights, as they will shine directly into the eyes of a following driver.

(18) Caution personnel that their jewelry or wristwatch may catch on a protruding component when mounting and dismounting from a vehicle.

(19) Warn personnel that metal decks become extremely slippery when wet, icy, or muddy.

(20) Before starting the engine, ensure that:

(a) The fire extinguishers are available and operative;

(b) The parking brake is engaged;

(c) Personnel are clear of the vehicle;

(d) The grill covers and other material which could block the exhaust are removed. Do not place covers over the exhaust vents to heat the interior of the vehicle.

(21) When lowering the ramp, except during a "combat drop", use the horn and the guide to warn personnel.

(22) When working on a vehicle inside a building or tent, open all of the doors or flaps to prevent carbon monoxide poisoning.

(23) Do not use gasoline for cleaning.

(24) Vehicle commanders will make periodic checks to ensure that hatch cover latches are not accidentally released during operation over rough terrain, and that all hatch cover pins are serviceable and used.

(25) No smoking in or on combat vehicles.

(26) Shut off the engine while refueling. A fire extinguisher will be available for immediate use.

21-3. Tanks.

a. Mounting and Dismounting.

Mount and dismount IAW the method approved for each vehicle type. Refer to the operator's manual.

b. Moving.

(1) Do not move a tank until ordered by the TC.

(2) The TC will assure that; all personnel on the outside and inside of the tank are clear before allowing the gunner to traverse the turret or raise or lower the gun. Crewmembers will announce "power," verbally over intercom, before placing the turret into electrical operation. NOTE: FC Reg 350-1 paragraph 19-16 contains rules for traversing turrets.

(3) When traveling to and from ranges, maximum road and trail speed will be IAW FC Reg 190-5.

(4) On field exercises or drills (not on roadways), TCs will inform their drivers of approaching vehicles that may attempt to pass.

(5) Operate tanks in low range while moving forward in confined areas, in and out of ditches, and on rough terrain.

(6) Also, consider sharp turns, bottlenecks along the routes, deep dust, mud, heavy brush, and ice. when in doubt, the driver will stop the tank.

(7) Do not transport ammunition on the rear deck. Do not place any equipment in a manner that may block the air inlet and exhaust grills.

(8) The inside of a tank will be clean at all times. Ammunition and equipment will be properly stowed and secured to prevent damage to materials or injury to personnel while the tank is in motion. Load plans must be approved and used.

(9) Fixed and hand fire extinguishers will be inspected each time the vehicle is operated, to ensure that they are sealed and ready for use.

c. Fire Emergency Actions.

Stop the engine, evacuate the crew, and activate the fire extinguisher system. A fire extinguisher system is not effective if the engine is running. Shut off master power switch immediately. Only the necessary number of deck grill sections will be open when using portable extinguishers to extinguish a fire in the engine compartment. Ensure all personnel are clear of deck plates before actuating Halon systems and deck plates are in place. (See TM 9-2350-264-10).

d. Towing.

(1) Towing a M1 series tank will be IAW the technical manual for tactical vehicle when using a M1A1 tank to recover a disabled M1 series tank.

(2) When using the M88 series to tow a disabled M1 series tank, use a third M1 series tank as a brake.

(3) No one will ride in or on a disabled M1 series tank while towing it.

(4) Towing speed will be 5 mph or slower when using a tow bar or two mph or slower when using two cables.

21-4. Explosives, Ammunition, and Weapons.

a. Policy.

The use of blank ammunition, pyrotechnics, and other devices is necessary to achieve realism in training. Commanders at all levels will rigidly control the issue, use, and accountability of these devices. Personnel using simulators and other pyrotechnics will be thoroughly knowledgeable of them, complete with safety requirements.

b. Standards.

(1) Post guards at ammunition storage areas. Prohibit smoking, fires, and open flames. Post "no smoking" signs.

(2) Do not leave "unexploded" ammunition, simulators, or similar devices in the maneuver area. Record the location of each training landmine, bobby trap, and other device. Remove the devices and account for them before leaving the area. After the exercise, inspect each person and vehicles for unauthorized possession of ammunition and explosive devices.

(3) All weapons that have blank ammunition adapters will be so equipped before use.

(4) Commanders will instruct their personnel not to touch or handle duds. Duds will be conspicuously marked and the location reported immediately through command channels. Only EOD personnel may remove duds.

(5) Control and account for ammunition during live-fire exercises. Do not mix live ammunition and blank ammunition.

(6) Vehicle's transporting ammunition will be placarded.

(7) Horseplay with any ammo or explosive devices can result in accidental death. Every weapon will be considered loaded.

(8) Do not fire blank ammunition within 20 feet of any person. When operating closer than 20 feet to the opposing force, clear all weapons. Personnel guarding POWs on exercises will not have blanks in their weapon.

(9) Do not load rocks, twigs, expended ammunition, or other objects into the muzzle of any weapon.

(10) Between sunset and sunrise, do not fire blank ammunition closer than 30 meters to other personnel. Do not fire pyrotechnics at, near, or towards aircraft in flight.

(11) Do not throw pyrotechnics directly at or onto vehicles, personnel, or tents.

(12) Collect blank ammunition upon completion of training. Designate an ammunition amnesty point. The designated ammunition amnesty point for Fort Carson Ammunition Supply Point (ASP).

21-5. Heaters.

a. Policy.

Use only Army approved heaters to heat vehicles and tents. When vehicle heaters are used, hatches will remain partially open to allow air circulation and prevent carbon monoxide poisoning. Tent stoves will be operated and maintained IAW this publication and TM 10-4500-200-13. Any heater using solid or liquid fuel will maintain a fire watch with fire extinguisher available. Fireguards must be posted, alert, awake, and properly trained on the signs of CO poisoning, proper operation of fire extinguishers and to evacuate all personnel in the event they detect any hazardous condition.

b. Space Heaters.

Portable radiant-type space heaters must be operated IAW the following:

(1) Personnel will be qualified and licensed to operate all Army approved heaters/ potbelly stoves, field ranges, and cooking stoves, swing fire heaters, immersion heaters, lanterns, and other fuel-fired devices.

(2) Secure the stovepipe opening covers with the tie tapes so that the covers will not contact the stovepipe.

(3) All heaters/stoves will be operated IAW the applicable TM.

(4) Use enough stovepipe sections so that one complete section is above the highest point of the tent.

(5) Ensure that the stovepipe sections are vertical and do not contact any part of the tent or camouflage. Inspect the tent to ensure it does not contact the stovepipes.

(6) Clear a four-foot area around the heater of combustibles, especially dry grass and pine needles.

(7) Check the fuel can, fuel supply lines, and the carburetors for leaks daily, particularly after changing fuel cans. Do not operate heaters when fuel leaks are present. Keep a 10 BC-rated fire extinguisher or bucket of sand near operating heaters.

(8) Never operate space heaters at full capacity, even during extreme cold. Normally, operate most space heaters with the carburetor set a "4" or less. Overheating of the stovepipe may ignite tent.

(9) Provide ventilation when operating space heaters if in TOCs.

(10) The fuel can for the heater must be located outside the tent as far from the tent as the fuel hose allows.

(11) While some tent heaters are designed to use several types of fuel, the following applies:

(a) When burning solid fuel in the M1941 Type-I ("potbelly") and the M1950 ("Yukon") use only wood, or coal. Refer to TM 10-4500-200-13 for more information. Do not fell trees or remove wood from old buildings to obtain fuel. Do not burn scrap wood from ammunition boxes. Pentachlorophenol (PCP), a preservative for wood in ammunition boxes, can expose personnel to hazardous fumes.

(b) When using liquid fuel, the guidance contained in TM 10-4500-200-13 is supplemented as follows:

(c) The recommended fuel for the M1950 Yukon is gasoline.

(d) The authorized liquid fuel for M1941 Type-II ("potbelly") space heaters is Mogas, diesel, or light fuel oil. The United States Army Safety Center (USASC) strictly advises against mixing any of these fuels.

(e) The most common problems experienced in the field with the liquid fuel stoves have been: Improper installation of the stove, particularly with leveling the stove. Improper maintenance or no maintenance on the stove, especially when using diesel. Operators who are untrained and not licensed. Personnel who operate liquid fuel space heaters or immersion heaters must possess a DA Form 5984-E annotated with the stove type that they are authorized to operate.

(f) Space heaters will be installed, set up, and maintained IAW applicable TMs.

(g) Immersion heaters will be installed, set up, and maintained IAW TM 5-4540-202-12&P, and TM 10-4500-200-13.

c. H-45 Heater, Space, Radiant, Type I (Solid Fuel) and Type II (Liquid Fuel). The H-45 heater is replacing the currently fielded M1941 space heater The H-45 heater is non-electrical, lightweight, portable space heater used for general-purpose heating and weighs approximately 70 pounds. The H-45 heater can operate on all types of liquid fuel (gasoline, diesel, JP8) and solid fuel (wood, coal). This heater is suitable for basic, basic cold, and extreme cold weather climate categories. Units may order the H-45 heater through normal supply channels using NSN 4520-01-329-3451.

d. Space Heater Arctic (SHA). The SHA is a 35KBTU heater that is designed to provide heat for the 10 man arctic tent and other tentage with floor area between 100 & 200 square feet. The SHA will replace the current Yukon heater which has severe operational deficiencies and poses a serious safety hazard in the filed. The SHA operates without using electrical power and can burn all types of liquid fuel (DF-2, DF-1, DF-A, JP-4, and gasoline) and solid fuel (wood and coal). It utilizes the new vaporizing R-tube burner technology which overcomes the major combustion and safety problems that have existed over the past 50 years in the nonpowered heater industry. These problems include poor smoky combustion of diesel fuel and the hazardous exposure of a pool of raw fuel during operation.
The new vaporizing R-tube burner technology eliminates these deficiencies while still maintaining simplicity, ruggedness, and low cost. All accessory components, including the pre-assembled, telescoping stove pipe, can be stored within the heater making it highly mobile and easy to assemble. Pre-production prototypes have been fabricated and Production Qualification Testing (PQT) has been successfully completed at Ft Greely Alaska.
FACTS:
Type Classification: FY00
NSN 4520-01-444-2364
Procurement Date: 3QFY98
Fielding Date: 4QFY01
Size: 18"H x 10"W x 24"L
Weight: 55# including all accessories (stack, flue cap, gravity feed adapter, hoses, etc.)
Climate Category: Operational -60F to 60F, Storage -60F to 160F
Application: GP, TEMPER, and Arctic Ten Man Tents.

e. Space Heater Convective (SHC). The SHC is a 35KBTU thermoelectric heater that provides forced hot air circulation in military tentage without the need for an external power supply. (i.e. eliminating the need for a field generator). This effort is the first of its kind to have successfully integrated thermoelectrics and combustion into a fieldable heater prototype that delivers clean, breathable heat to military tentage and shelters. The thermoelectric heater generates its own electrical power (approximately 100 watts) through the use of thermoelectric modules located in the combustion chamber which converts waste heat into electrical energy. The electrical current generated is used to power the blowers, pumps, ignition system, safety system, and control devices required in the operation of the heater. The heater can be operated either inside or outside the tent and has the capability to burn multiple liquid fuels (DF-2, DF-1, DF-A, JP-5 and JP-8). The heater is simply started with a single switch and operations is completely automatic due to built in diagnostics, safety and temperature controls. The heater will provide a 60% increase in combustion efficiency over currently fielded nonpowered heaters and provide much cleaner combustion of diesel fuel, resulting in a significant reduction if fuel costs and maintenance requirements. Pre-production prototypes have been fabricated and Production Qualification Testing (PQT) has been successfully completed at Ft Greely Alaska 2QFY 95.
FACTS:
Type Classification: 3QFY97
NSN 4520-01-431-8927
Size: 17"H x 14"W x 39"L
Weight: 67#
Climate Category: Operational -40F to 60F, Storage -60F to 160F
Application: Modular Command Post System Tent, TOCs and other tents housing expensive electronics equipment.

f. Thermoelectric Fan (TEF). The TEF is designed for use with standard military heaters to produce more uniform heating of the shelter and resulting in a more comfortable living/working conditions, improved health and morale, and obtaining significant fuel savings. The TEF is a compact, lightweight, ruggedly designed unit that simply sets on top of the heaters when in use.
It has been build in thermoelectric module which converts heat from the stove into electricity to power a 450 cfm fan. The fan blows air downward over the heater to the bottom of the tent, thus improving air circulation and providing for more even distribution of heat throughout the entire shelter. Improved

heating performance a s result of the circulating fan allows operating the burners at lower outputs, thus reducing fuel consumption. Final design units have been fabricated under a Phase II SBIR effort. These prototypes were successfully tested with the Space Heater (FOSH) program in a Production Qualification Test (PQT) 1QFY96. The TEF will Type Classified with the SHA and SHS.

FACTS:
Type Classification: 3QFY97
Size: 12" diameter, 10" high
Weight: 12#
Climate Category: Operational -60F to 60F, Storage -60F to 160F
Application: Used with all nonpowered tent heaters.

21-6. Carbon Monoxide Poisoning.

a. Hazard.

Carbon monoxide is a gas produced by the incomplete burning of a gaseous, liquid, or solid fuel. It is odorless, colorless, and tasteless. The most common source of this gas is the exhaust from gasoline powered motors. When inhaled into the body, the gas replaces the oxygen in the red blood cells, which then spreads rapidly throughout the body. After inhaling sufficient quantities, death results from asphyxiation.

b. Symptoms.

Symptoms of carbon monoxide poisoning are headaches, dizziness, sleepiness, and tightness across the forehead and cherry red lips in the later stages.

c. Prevention.

(1) Do not sleep near gasoline-powered generator sets.

(2) Provide adequate ventilation when operating generators, battery chargers, and space heaters.

(3) Do not operate gasoline-powered equipment near tents.

(4) Prohibit personnel from running the engine in a parked vehicle with the windows closed. Do not use the exhaust system as a heater.

(5) Operate stoves with adequate ventilation.

21-7. Fueling Operations.

a. General.

(1) Personnel operating tank and pump units must be MOS 77F school trained in refueling operations. Soldiers must posses a license for the tank and pump unit.

(2) Fuel spilled on the skin of an individual is an irritant and evaporates rapidly, which may cause frostbite. Clean the skin and remove fuel-contaminated clothing immediately.

(3) Unit commanders may designate a school trained 77F to train fuel handlers. To ensure safe and proper procedures are followed, a NCO in the rank of sergeant or above will be appointed.

(4) Personnel completing fuel handler training will receive a Certificate of Qualification Card (DD Form 1902), which the certifying NCO must sign. Obtain these cards from the DOIM Publications Stockroom.

(5) One crewmember will remain ready with a portable fire extinguisher near the filler cap. For refueling operations, see AR 420-90 for the authorized fire extinguisher.

(6) Do not smoke within 50 feet of the vehicle.

(7) Shut off the engine and place the master switch in the "Off" position.

(8) All refueling points must be marked, away from living, working areas and posted with "No smoking within 50 feet." This includes the mess hall refueling and pre-lighting areas.

(9) When refueling from a fuel truck, ground both vehicles and bond the vehicles together with a ground cable. Unit personnel will establish ground points by either using permanent affixed and approved ground points or installing ground points IAW FM 10-67-1.

(10) When refueling from cans, ensure that the nozzle makes contact with the fuel tank during pouring.

(11) Operators and fuel handlers will place the correct fuel into their vehicle.

(12) Install the nozzle covers when not in use.

b. Fire Prevention and Protection.

(1) Fire prevention and protection will be IAW FC Reg 420-5.

(2) The use of pyrotechnics and smoke grenades will be dependent on the existing fire conditions at the time of exercise. Develop an alternate signal.

(3) Vehicles equipped with catalytic converters must be parked in areas free of combustible materials such as grass and brush. Traveling in vehicles equipped with catalytic converters should be restricted to established roads and trails free of flammable materials.

(4) Smoking is prohibited:

(a) Within 50 feet of flammable or compressed gases

(b) Within 50 feet of ammunition or explosive storage area.

(c) Within 50 feet of vehicles loaded with ammunition or explosives.

(d) By personnel in bed.

(e) By vehicle operators when the vehicle is moving.

(5) Do not place smoking materials in trash cans.

(6) Do not use flammable liquids, such as gasoline, for cleaning.

(7) Inspect portable fire extinguishers monthly and record the inspection on the inspection tag.

c. Environment.

Commanders will brief their troops on the following subjects before departure:

(1) Due to the extreme variations in seasonal temperatures found in the training area, climate becomes an important factor in training. Consider the effects of the sun, dust, high altitude, and the strong winds.

(2) Establish an acclimatization period for new personnel to allow the body to adapt to altitude. While this process takes around 90 days for completion, the acclimatization process is most rapid during the first 4 days. During the first week, new troops should be on a limited training basis only, avoid prolonged exposure to heat, cold, and be gradually exposed to exercise and increasing amounts of sun, heat, and cold weather.

(3) All military personnel are responsible for exercising precautionary measures for protecting themselves against cold injuries. Each individual soldier is responsible for wearing adequate clothing and equipment that will prevent cold injuries. It is the responsibility of the soldier to pack appropriate dry clothing and equipment before deploying to a field environment. If the soldier does not have adequate clothing and equipment available, inform the chain-of-command. Everyone is susceptible to cold injuries. Keep your chain-of-command informed. Your chain-of-command can not help you if they do not know your condition.

(4) Commanders will provide their soldiers with cold weather training annually and before deploying to a cold weather environment. Refer to FC Reg 40-10. All leaders must ensure that their soldiers have adequate equipment and clothing to prevent cold injuries before deploying to a field environment. Leaders must be alert to the conditions of the soldiers that they supervise. Leaders will ensure that all soldiers are receiving appropriate nutrition. This includes ensuring that each soldier is drinking adequate amounts of water to prevent dehydration.

(5) The amount of heat produced by the body increases directly with increasing work. Therefore, reduction of workload markedly decreases the total heat stress. Heavy work should be scheduled for the cooler hours of the day, such as early morning or late evening.

(6) As the body maintains a normal temperature under high temperatures by increased evaporation of perspiration, increase water intake to maintain a balance. Insufficient consumption results in a rise in body temperature and leads to various heat injuries. Consume more water during heavy exertion. Commanders must ensure that their personnel increase water consumption during periods of high temperatures.

d. Effects of the elements.

(a) The effects of the sun, because of our higher altitude, causes poor vision and eye strain as well as sunburn, sunstroke, heat exhaustion, and heat cramps. The use of proper clothing, discipline, keeping the body well covered, and increased consumption of water must be emphasized by the unit commanders to minimize sun and heat causalities.

(b) Strong winds will lift dust, and sand particles into the air and may cause eye injuries and respiratory ailments. The wind also adds to chapping and sunburn injuries. Recommend personnel always carry appropriate eye protection.

(c) Commanders are responsible for either continuing or curtailing operations during inclement or extreme high or low temperatures. Supervisors are responsible for assuring soldiers have and properly use TA-50 as conditions warrant.

21-8. Smoke Operations.

a. Policy.

Personnel will carry their protective mask when participating in exercises that include the use of smoke.

b. Standards

The following precautions will be followed when training with smoke including HC, WP, PWP, fog oil, red phosphorus (RP), colored smoke, and diesel smoke. Personnel will mask:

(1) Before exposure to any concentration of smoke produced by M8 white-smoke grenades, smoke pots (HC Smoke), or metallic powder obscurants.

(2) When passing through or operating in dense (visibility less than 50 meters) smoke, such as smoke blankets and smoke curtains.

(3) When operating in or passing through smoke haze (visibility greater than 50 meters) and the duration of exposure will exceed four hours.

(4) Anytime exposure to smoke produces breathing difficulty, eye irritation, or discomfort. Such effects on one individual will serve as a signal for all similarly exposed personnel to mask.

(5) When using smoke during MOUT training or while operating in oxygen deficient atmospheres. NOTE: The protective mask is not effective in oxygen deficient atmospheres. Do not try to enter confined spaces when the oxygen level is displaced and may not support human life.

(6) Smoke generator personnel will mask when it is impossible to stay upwind of the smoke.

(7) Showering and laundering of clothing following exercise will eliminate the risk of skin irritation following exposure to smoke. Troops exposed to smoke should reduce skin exposure by rolling down sleeves.

(8) When using HC smoke, warn personnel downwind and require personnel operating in the smoke to wear their protective mask. When planning for the use of HC smoke in training, consider the weather conditions and the possible effects of the smoke. Establish positive controls (observation, control points, communications) to prevent exposure of unprotected personnel.

21-9. Rail/Line Haul Operations.

a. General.

This chapter applies to all elements assigned or mobilized at Fort Carson. Complete the following before uploading, or downloading:

(1) Emergency medical personnel must be on hand with an ambulance available for evacuation before the operation can start. Medical support must be on hand during the entire operation including line haul up/down load operations.

(2) Each rail track will have a unit safety officer and NCO.

(3) Identify rail-load safety officers with white marking ("Engineer") tape around their helmet.

(4) Safety personnel will not perform ground guide duties. Safety officers will observe the operation for unsafe acts and conditions, but Safety officers will not assist with the operation.

(5) Rail loading team will attend a rail loading class.

b. Before Operation.

Brief all personnel on rail safety, to include the convoys to and from the railhead and motor parks. The following items will be covered during each safety briefing:

(1) Emergency medical support is necessary to include an evacuation vehicle during the entire operation.

(2) Location of medical personnel at railhead.

(3) There will be no horseplay at the railhead or in the rail car area.

(4) Personnel will stay clear of rail cars while they are docking or moving.

(5) Designated smoking and break areas. There will be no smoking allowed within 50 feet of each rail car.

(6) Prohibit personnel from operating their POV near the rail load operation. No POV will be parked within 50 feet of rail cars.

(7) Do not move between or underneath rail cars.

(8) Drivers will not move vehicles except under the direct guidance of the main ground guide.

(9) Vehicles will be in the four-wheel drive mode in the low range.

(10) Rail cars must be clear of debris, snow, and ice.

(11) Speed limit for vehicles around railhead is 5 mph.

(12) The speed limit on rail cars is two mph.

(13) No other personnel but the driver may ride in the vehicle while on the rail cars.

(14) When the driver of a vehicle has lost sight of the ground guide, the driver will stop immediately.

(15) Do not stop vehicles on spanners.

(16) Three ground guides per vehicle wheeled and track, one on the rail car in front of the rail car the vehicle is traveling on, and one each side of the rail car.

(17) Ground guides on each side of the rail car will be approximately 10 feet from the vehicle traveling the rail car.

(18) Ground guides will avoid being on the same rail car with a moving vehicle. They will maintain a rail car length between themselves and vehicle. When spotting the vehicle onto the last car, the guide will act to avoid being pinned between the two vehicles.

(19) Ground guides must watch for problems and take their task seriously while loading.

(20) Only the front guide will control the movement of the vehicle. Never try to guide a vehicle without looking directly at the vehicle.

(21) At no time will the guide walk backwards or run on a rail car.

(22) Spanners must be placed with the kick plate in the direction of travel and not on top of brake wheels on the rail car.

(23) Chain and block spanners on the upper decks of multi-level cars to prevent movement.

(24) If the rail cars start moving, stop all loading until the engineer can secure the cars.

(25) Lightning striking rails may travel miles down the rail. DO NOT remain on or near rail cars during an electrical storm. Operations will halt.

(26) Use work gloves to protect your hands while securing your vehicle to a rail car.

(27) All personnel must demonstrate knowledge of hand and arm signals. Anyone may stop the operation for safety reasons if you see a violation.

(28) Personnel at the railhead will wear a Kevlar helmet.

21-10. Accident Reporting.

a. Policy

Report accidents IAW this publication and AR 385-40.

b. Cold Injury.

Submit an AGAR IAW AR 385-40 and submit an additional report IAW FC Reg 40-10 for each injury caused by cold temperatures. forward an information copy to the DCG through the Chief of Staff.

c. Heat Injury.

Submit an AGAR IAW AR 385-40 for each person hospitalized or placed on quarters, due to heat injury who cannot perform even light duty for 24 hours or more following the incident.

d. Suspense.

Submit an AGAR IAW AR 385-40 to the safety specialist assisting the unit during the exercise within fourteen consecutive days of each accident.

e. Deployment.

While deployed the rotational unit will have all accident reports completed and turned into the FCSO safety specialist prior to clearing the training area/redeployment.

Chapter 22

Tactical Safety Quiz

Use this test before tactical training exercise or deployment. Add questions as needed to enhance specific mission knowledge. The test is at Appendix F of this publication. The answer key in Table 1 below.

1. B	14. C	26. D	38. B
2. D	15. B	27. A	39. D
3. B	16. C	28. D	40. C
4. B	17. A	29. C	41. D
5. A	18. D	30. A	42. C
6. D	19. E	31. D	43. B
7. A	20. D	32. B	44. D
8. C	21. D	33. C	45. A
9. D	22. B	34. D	46. E
10. C	23. C	35. D	47. C
11. B	24. A	36. B	48. A
12. B	25. C	37. D	49. C
13. A			

Table 1 Tactical Safety Quiz Key

APPENDIX A

References

A-1. Required References.

The following publications contain safety requirements.

29 CFR

Labor

ANSI Z87.1-1989

American National Standard Practice for Occupational and Educational Eye and Face Protection

ANSI Z89.1-1997

American National Standard Industrial Head Protection

AR 15-6

Procedures for Investigating Officers and Boards of Officers

AR 25-400-2

Modern Army Record Keeping System (MARKS)

AR 40-5

Health and Environment

AR 40-63

Ophthalmic Services

AR 55-29

Military Convoy Operations in CONUS

AR 190-11

Physical Security of Arms, Ammunition, and Explosives (with FORSCOM and TRADOC Supplement 1)

AR 385-10
Army Safety Program

AR 385-11
Ionizing Radiation Protection Licensing Control

AR 385-15
Water Safety

AR 385-16
System Safety Management Guide

AR 385-40
Accident Reporting Records

AR 385-55
Prevention of Motor Vehicle Accidents

AR 385-63
Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat

AR 385-64
Ammunition and Explosive Safety Standards

AR 385-65
Identification of Inert Ammunition and Ammunition Components

AR 385-95
Aircraft Accident Prevention.

AR 600-55
Motor Vehicles Driver and Equipment Operating Selection, Training, Testing, and Licensing

AR 672-20
Incentive Awards

AR 672-74
Army Accident Prevention Awards Program

AR 700-141
Hazardous Material Information System

DA Pam 385-40
Accent Reporting and Records

FC Reg 40-9
Respiratory Protection Program

FC Reg 40-17
Occupational Visitation Program

FC Reg 40-20
Conservation of Hearing

FC Reg 40-27
Prevention of Heat Injury

FC Reg 190-5
Motor Vehicle Traffic Supervision and Vehicle Registration

FC Reg 350-1
Mountain Post Training

FC Reg 385-2
Ionizing and Nonionizing Radiation Protection Program

FM 21-305
Manual for the Wheeled Vehicle Driver

FM 21-306
Manual for the Track Combat Vehicle Driver

FM 25-100
Training the Force

FM 25-101
Battle Focused Training

FM 55-30
Army Motor Transport-Units and Operations

FM 100-5
Operations

FM 100-14
Risk Management

FM 101-5
Command and Control for Commanders and Staff

TB 43-0142
Safety Inspection and Testing of Lifting Devices

Public Law 91-596
Occupational Safety and Health Act of 1970

A-2. Related References.
The following publications relate to the safety program.

AR 700-68
Storage and Handling of Compressed Gases and Gas Cylinders

DA Pam 385-1
Unit Safety Officer/Safety NCO Guide

DA Pam 385-3
Protective Clothing and Equipment

DA Pam 385-4
Safety Precautions for Maintenance of Electrical/Electronic Equipment (units that have electrical repair facilities)

FC Reg 40-10
Prevention of Cold Injury

FM 21-11
First Aid for Soldiers

FORSCOM Reg 15-1
Collateral Investigations

TB MED 81
Cold Injury

TB MED 245
Warning Tag for Medical Oxygen Equipment (DD Form 1191)

TB MED 269
Carbon Monoxide: Symptoms, Etiology, Treatment, and Prevention of Overexposure

TB MED 502
Occupational and Environmental Health Respiratory Protection Program

TB MED 507
Prevention, Treatment, and Control of Head Injury

TB MED 523
Control of Hazards to Health from Laser Radiation

TB MED 524
Control of Hazards to Health from Ionizing Radiation used by the Army Medical Department

TB 43-0116
Identification of Radiological Items in the Army Supply System

TB 43-0125
Installation of Communication-Electronic Equipment

TB 43-0129
Safety Measures to be observed when installing and using Whip Antennas, Field-type Masts, Tower, Antennas and Metal Poles used with communication, Radar and Reaction Finder Equipment

TB 43-0142
Safety Inspection and Testing of Lifting Devices

TB 43-0151
Inspection and Test of Air and Other Gas Compressors

TB 43-0216
Safety and Hazard Warning for Operational and Maintenance of TACOM equipment

TB 385-1
Safety Carbon Monoxide Poisoning

TB 385-4
Safety Requirements for Maintenance of Electrical and Electronic Equipment

TB 385-101
Safe Use of Cranes, Crane-Shovels, Draglines, and Similar Equipment near Electric Power Lines

TB 600-1
Procedures for Selection, Training, Testing, and Qualification of Operators on Equipment Systems

FC Reg 95-1
Aviation

FC Reg 385-63
Firing of Ammunition for Training, Target Practice, Admin and Control of Ranges and Training Areas

FC Reg 525-1
Installation Emergency Operations

FC Reg 600-17
Driver Selection, Testing, and Licensing

FC Tactical Safety Handbook
Handbook for Tactical Safety.

A-3. Required Forms.

The following forms are required by some or all organizations on Fort Carson to comply with the safety program.

CA-1
Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation

CA-2
Federal Employee's Notice of Occupational Disease and Claim for Compensation

CA-6
Official Supervisor's Report of Employee's Death

CA-16
Authorization for Treatment

CA-17
Duty Status ReportDA Form 285
Army Accident Report

DA Form 285-AB-R
Abbreviated Ground Accident Report

DA Form 1118
United States Army Certificate of Merit for Safety

DA Form 1119
United States Army Certificate of Achievement in Safety

DA Form 1119-1
United States Army Certificate of Achievement in Safety

DA Form 3946
Military Police Traffic Accident Report

DA Form 4755
Employee Report of Alleged Unsafe or Unhealthful Working Condition

DA Form 1902
Certificate of Qualification

DD Form 1556
Request, Authorization, Agreement, Certification of Training and Reimbursement

FC Form 1147
Inspection or Periodic Inspection

FC Form 1147-2
Determination for Lockout/Tagout procedures

FC Form 1147-3
Location of Lockout, Machine Specific

FC Form 1147-4
Group Lockout/Tagout

FC Form 1147-5
Lockout Sequence

FC Form 1147-6
Restoring Machines or Equipment to Normal Operation

FC Form 1147-7
Training

APPENDIX B
Glossary

AAF
Army Airfield

ACV
Army Combat Vehicle

AG
Adjutant General

AGAR
Abbreviated Ground Accident Report

AMV
Army Motor Vehicle

ANSI
American National Standards Institute

AOV
Army Other Vehicle

AR
Army Regulation

ASAP
As soon as possible

ASP
Ammunition Supply Point
ATV
All Terrain Vehicle

BII
Basic Individual Issue

CAIG
Centralized Accident Investigation - General

CARC
Chemical Agent Resistant Compound

CECOM
Communication and Electronics Command

CDI
Civilian Disabling Injuries

CD-ROM
Compact Disc - Read Only Memory

CFR
Code of Federal Regulations

CG
Commanding General

CHI
Cargo Helicopter

CID
Criminal Investigation Division

CIF
Central Issue Facility

COB
Close of Business

CPAC
Civilian Personnel Advisory Center

CRCP
Civilian Resource Conservation Program

CAT
Common Table of Allowances

CVC
Combat Vehicle Crewmen

DA
Department of the Army

DCG
Deputy Commanding General

DD
Defense Department

DECAM
Directorate of Environmental Compliance and Management

DOD
Department of Defense

DOC
Directorate of Contracting

DOIM
Directorate of Information Management

DOL
Directorate of Logistics

DOT
Department of Transportation

DPW
Directorate of Public Works

DRM
Directorate of Resource Management

DSN
Defense Service Network

EACH
Evans Army Community Hospital

ECOD
Estimated Cost of Damage

EOC
Emergency Operations Center

EOD
Explosive Ordinance Disposal

ETS
Enlisted Termination of Service

FC
Fort Carson

FCSO
Fort Carson Safety Office

FECA
Federal Employee's Compensation Act

FM
Field Manual

FOD
Field Officer of the Day

FORSCOM
Forces Command

FTX
Field Training Exercise

GFE
Government Furnished Equipment

GFM
Government Furnished Material

GFP
Government Furnished Property

GTA
Graphic Training Aid

HazCom
Hazard Communication

HEPA
High Efficiency Particulate Filter

HET
Heavy Equipment Transport

HMIS
Hazardous Material Information System

HMMWV
High Mobility Military Wheeled Vehicle

IAW
In Accordance With

I-CAIG
Installation Centralized Accident Investigation - Ground

IDLH
Immediately Dangerous to Life or Health

IHO
Industrial Hygiene Office

LAO
Logistics Assistance Office

LEL
Lower Explosive Limit

LFL
Lower Flammable Limit

MARKS
Modern Army Record Keeping

MDI
Military Disabling Injuries

MEDDAC
Medical Command

MEDEVAC
Medical Evacuation

MOS
Military Occupational Specialty

MOUT
Military Operations in Urban Terrain

MOPED
"Motor-Pedal" Any motorized bicycle

MP
Military Police

MPH
Miles Per Hour

MSC
Major Subordinate Command

MSDS
Material Safety Data Sheet

MSF
Motorcycle Safety Foundation

MTO&E
Modified Table of Organization and Equipment

MWR
Morale, Recreation, and Welfare

NCO
Noncommissioned Officer

NEC
National Electrical Code

NIOSH
National Institute for Occupational Safety and Health

NLT
No Later Than

NSN

National Stock Number

NTC
National Training Center

NVD
Night Vision Devices

OSH
Occupational Safety and Health

OSHA
Occupational Safety and Health Administration

OWCP
Office of Worker's Compensation Program

PAM
Pamphlet

PCMS
Pinon Canyon Maneuver Site

PCP
Pentachlorophenol

PCS
Permanent Change of Station

PPE
Personal Protective Equipment

PMCS
Preventive Maintenance Checks and Services

PMO
Provost Marshall's Office

POV
Privately Owned Vehicle

POW
Prisoner of War

POL
Petroleum, Oil, and Lubricants

RBI
Reply by Endorsement

RP
Real Phosphorus

S&OHAC
Safety and Occupational Health Advisory Council

SAFREP
Safety Representative

SASOHI
Standard Army Safety and Occupational Health Inspection

SCBA
Self Contained Breathing Apparatus

SOP
Standing Operating Procedure

SOTC
Safety Officer Training Course

SVIA
Specialty Vehicle Institute of America

TB
Technical Bulletin

TB MED
Technical Bulletin - Medical

TC
(1) Track Commander
(2) Training Circular

TDA
Table of Distribution and Allowances

TM
Technical Manual

TO&E
Table of Organization and Equipment

TRMM
Training Resource Management Meeting

TSC
Training Support Center

USASC
United States Army Safety Center

WBGT
Wet Bulb Globe Temperature

WP
White Phosphorus

APPENDIX C

Definitions

Acceptable Environmental Conditions
Confined space workplace conditions in which uncontrolled hazardous atmospheres are not present

Affected Employee
An employee whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires them to work in an area in which such servicing or maintenance is being performed

Army Accident
An unplanned event or series of events that result in one or more of the following as a result of Army operations

Attendant
An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendants' duties assigned in the employer's permit space program

Authorized Employee
A person who locks or tags machines or equipment in order to perform servicing or maintenance covered under this section

Authorized Entrant
An employee authorized by the employer to enter a permit required confined space

Blanking or Blinding
The absolute closure of a pipe, line, or duct by fastening across its bore a solid plate or "cap" which completely covers the bore; which extends at least to the outer edge of the flange or which it is attached, and which is capable of withstanding the maximum upstream pressure with no leakage beyond the place

Capable of Being Locked Out
An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability

Damage to Army Property
(Including government-furnished material (GFM), or government-furnished property (GFP), or government-furnished equipment (GFE) provided to a contractor

Double Block and Bleed
The closure of a line, duct, or pipe closing and locking or tagging a drain or vent which is open to the atmosphere in the line between two locked-closed valves

Emergency
Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the confined space which could endanger entrants

Energized
Connected to an energy source or containing residual or stored energy

Energy Isolating Device
A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operate independently; a line valve; a block and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices

Energy Source
Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy

Engulfment
The surrounding and effective capture of a person by a liquid or finely divided solid substance

Entry
The act by which a person intentionally passes through an opening into a permit required confined space, and includes ensuing work activities in that space

Entry Permit
The written or printed document provided by the employer to allow and control entry into a permit space. The entry permit: Defines the conditions under which the permit space may be entered: States the reason for entering the space; the anticipated hazards of the entry; for entries where the individual authorizing the entry does not assume direct charge of the entry, lists the eligible attendants, entrants, and

the individuals who may be in charge of the entry; and establishes the length of time (not to exceed one year) for which the permit may remain valid

Entry Permit System
The employer's written procedures for preparing and issuing permits for entry and returning the permit space to service following termination of entry

Gambling
The process of making risk decisions without applying the safety risk management process

Hazard
A condition with the potential of causing injury to personnel, damage to equipment or structures, loss of material, or decreases the ability to perform a function or mission

Hot Tap
A procedure used in the repair, maintenance and service activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or appurtenances. Commonly used to replace or add sections of pipelines without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Hazardous Atmosphere
An atmosphere that may expose employees to a risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes:
A flammable gas, vapors, or mist that exceeds 10 percent of its lower flammable limit (LFL)
An airborne combustible dust at a concentration that obscures vision at a distance of five feel (1.52m) or less An atmosphere oxygen concentration below 19. 5 percent or above 23.5 percent
An atmospheric concentration below 19.5 percent or above 23.5 percent
An atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart Z 29 CFR 1910 and could result in employee exposure in excess of its dose or permissible exposure limit(s)
Any other atmospheric condition recognized as immediately dangerous to life or health

Hazardous Chemical
Any chemical that is a physical or health hazard

Hot Work Permit
The employer's written authorization to perform operations which could provide a source of ignition, such as riveting, welding, cutting, burning or heating

Immediately Dangerous to Life or Health (IDLH)
Any condition which poses an immediate or delayed threat to life; may result in irreversible adverse health effects; or that would interfere with an individual's ability to escape unaided from a permit space

Immediate-severe health Effects
Any acute clinical sign of a serious, exposure-related reaction manifested within 72 hours after exposure.

Injury to military personnel, on or off duty. To on-duty Army civilian personnel, including non-appropriated fund employees and foreign nationals employed by the Army when incurred during performance of duties while in a work-compensable status

Isolation
The separation of a permit space from unwanted forms of energy and material that could be a serious hazard to permit space entrants

Lockout
The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed

Lockout Device
A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Includes blank flanges and bolted slip blinds

Low Hazard Permit Space
A permit space where there is an extremely low likelihood that an IDLH or engulfment hazard could be present, and where all other serious hazards have been controlled

Occupational Injury or Illness
(fatal or nonfatal) to Army military personnel, Department of the Army Civilians (DAC), non-appropriated fund employees, or foreign nationals employed by the Army

Oxygen Deficient Atmosphere

An atmosphere containing less that 19.5 percent oxygen by volume

Oxygen Enriched Atmosphere
An atmosphere containing more than 23.5 percent oxygen by volume

Permit Required Confined Space
Any confined space that has one or more of the following characteristics: Is large enough and so configured that an employee can bodily enter and perform assigned workHas limited or restricted means for entry or exit (some examples are tanks, vessels, silos, storage bins, hoppers, vaults, pits and diked areas) and is not designed for continuous employee occupancy
Have one or more of the following characteristics:
Contains or has a known potential to contain a hazardous/explosive atmosphere
Contains a material with the potential for engulfment of an entrant
Has an internal configuration such as that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor, which slopes downward and tapers to a smaller cross section
Contains any other recognized serious safety or health hazard

Permit Required Confined Space Program
The employer's program for controlling and protecting employees from permit space overall hazards and for regulating employee entry into permit spaces

Probability
The likelihood of a hazard causing an accident

Prohibited Condition
Any condition in a permit space not allowed by the permit during the authorized entry period

Rescue Team
A group of two or more employees designated and trained to perform rescues in permit required confined spaces

Retrieval system
equipment, including a retrieval line secured at one end to the worker by a chest-waist or full-body harness, or wristlets, and with its other end secured to either a lifting device or to an anchor point located outside the entry portal used for non-entry rescue of persons from permit spaces

Risk
An expression of potential loss over a specific period of time or operational cycle

Risk Assessment
The process of detecting hazards to determine their importance, value, or magnitude

Risk Management
The leadership and decision process that develops control over danger, losses, or adverse situations

Safety Officer
An officer, warrant officer, civilian, or a NCO with a rank of SSG and higher appointed by the commander to manage the safety program

TACTICAL READINESS QUIZ

1. The greatest number of soldier deaths at NTC are caused by:
A. Snakebites.
B. Vehicle accidents.
C. Weapons accidents.
D. Heat injuries.

2. About _____ percent of causalities in combat are caused by accidents.
A. 5 percent
B. 10 percent
C. 25 percent
D. More than 50 percent

3. Which statement best describes the role of safety in combat?
A. Safety interferes with combat and does not belong on the battlefield.
B. Safety is an element of force protection that preserves combat power from accidental loss.
C. Only unit safety officers and senior NCOs are responsible for safety on the battlefield.
D. Leaders can conduct operations safely if they rely on experience and intuition.

4. Which statement best describes NTC policy on use of safety belts in vehicles?
A. Only the driver is required to use a safety belt.
B. All occupants will use available safety belts whenever the vehicle is moving.
C. Vehicle occupants do not need to wear safety belts during movement to contact when it interferes with operations.
D. Safety belts are required only on paved roads.

5. What are the correct tactical wheeled vehicle speed limits at NTC for driving on dirt or gravel roads (1) in daylight and (2) at night with blackout drive lights on with NVGs?
A. 35 mph and 25 mph respectively
B. 35 mph and 30 mph respectively
C. 30 mph and 25 mph respectively
D. 40 mph and 35 mph respectively

6. What is the minimum daily water intake to avoid heat injury during moderate activity (e.g., route march on level ground)?

	Over 80 F	Under 80 F
A.	8 quarts	4 quarts
B.	10 quarts	6 quarts
C.	15 quarts	11 quarts
D.	12 quarts	9 quarts

7. Which statement describes NTC policy on minimum qualifications for drivers?
A. Only properly licensed personnel will operate vehicles at NTC.
B. Student drivers may drive vehicles at NTC if accompanied by a master driver.
C. The unit commander can authorize unlicensed personnel to drive on unpaved surfaces only.
D. Unlicensed personnel may operate a vehicle in the maneuver box if the driver is "killed" in simulated combat.

8. Which statement DOES NOT apply to ground guiding procedures?
A. If the driver loses sight of the guide, he or she must stop the vehicle immediately.
B. Ground guides are required in bivouac areas, when backing up, and during restricted visibility.
C. A vehicle may be operated in an assembly area without a ground guide if vehicle speed is less than 5 mph.
D. A 5-ton truck requires two ground guides when backing even with both side mirrors serviceable.

9. What is the MINIMUM protective equipment requirement for DRIVERS operating a multi-fuel vehicle?
A. Safety belts.
B. Eye protection.
C. Hearing protection.
D. A and C.
E. All of the above.

10. Smoking is prohibited within _____ feet of flammable materials, compressed gases, ammunition, and fuel-handling operations.
A. 10 feet
B. 25 feed
C. 50 feet
D. 100 feet

11. Soldiers can be trained to overcome the ill effects of sleep loss.
A. True
B. False

12. A soldier is most effective when he gets _____ hours' sleep a night.
A. 5 to 6
B. 7 to 8
C. 8 to 9
D. 10 to 11

13. Select the INCORRECT statement concerning vehicle preventive maintenance checks and service (PMCS).

A. The PMCS checklist in the TM is a learning tool; a well-trained driver can do PMCS safely without the checklist.
B. A driver should do PMCS before operation; during operation when he has an opportunity; such as rest stops; and after operations.
C. A driver should always rely on a tire pressure gauge to determine correct tire pressure.
D. Mechanically unsafe vehicles should not be operated until deficiencies are corrected.

14. Hoffman charges and blanks (excluding small arms blanks) will not be fired within _____ of other soldiers.
A. 5 meters
B. 25 meters
C. 50 meters
D. 75 meters

15. Which of the following is NOT a good method to use to avoid a cold-weather injury?
A. Change socks often.
B. Tighten boot laces to keep cold air out.
C. Keep body and clothes clean.
D. Drink fluids frequently.

16. When ground guiding, voice signals are better than hand signals.
A. Yes, if the ground guide and driver agree in advance.
B. No, voice and hand signals are equally effective.
C. No, voice signals can easily be misunderstood.

17. What information is needed to request emergency assistance from range control?
A. Location, type of emergency, how pickup zone will be marked, and terrain features.
B. Location type of emergency, name of commander, type of mission.
C. Location, fuel status, vehicle type, names of soldiers involved.

18. The ball on an antenna tip:
A. Is used to improve antenna's efficiency.
B. Is there only to protect the antenna.
C. Should be removed if it catches frequently on vegetation during vehicle movement.
D. Is a required item to protect soldiers from being hurt by the antenna tip.

19. Training for personnel operating vehicles under night tactical conditions should include:
A. Dark adaptation and night vision techniques.
B. Ground guiding under night tactical conditions.
C. Sensory illusions at night.
D. Night vision goggle use if mission essential.
E. All of the above.

20. The pyrotechnic signal for an actual emergency is:
A. White star cluster.
B. White Smoke grenade.
C. Green star cluster or green smoke.
D. Red smoke or a red star cluster.

21. Which is the INCORRECT procedure for dealing with a dud?
A. Do not disturb.
B. Mark the area distinctly.
C. Determine grid coordinates.
D. Build a berm around it to protect other personnel.

22. Small arms blanks will not be fired within _____ meters of troops.
A. 5 meters
B. 10 meters
C. 15 meters
D. 50 meters

23. During periods of very hot or cold weather, a _____ acclimatization period should be established.
A. 10-day
B. 1-day
C. 4-day
D. 7-day

24. Minimum water consumption per day when the WBGT is less than 80 degrees is _____ quarts for soldiers engaged in forced march.
A. 12 quarts
B. 5 quarts
C. 7 quarts
D. 9 quarts

25. The FIRST thing to do when you are lost in the desert is to:
A. Look for high ground and go toward it.
B. Turn around and retrace your route.
C. Stop where you are.
D. Search for wood and brush to use for a signal fire.

26. Hearing protection is NOT required when operating/handling:
A. Mortars.
B. Multi-fuel trucks.
C. Artillery simulators.
D. Smoke grenades.

27. What is the authorized liquid fuel for tent heaters?
A. As determined by the operators/-10 manual for the specfic heater.
B. JP4.
C. Diesel.
D. Kerosene.
E. Mogas.

28. Soldiers must be trained and licensed to operate which of the following?
A. Tent heaters.
B. M2 burner.
C. Immersion heaters.
D. All of the above.

29. Which of the following IS permitted in the cantonment area?
A. Star clusters.
B. Smoke grenades.
C. Small arms, when properly cleared.
D. Duds, after defusing.
E. None of the above.

30. Which of the following will NOT be the last vehicle in a convoy?
A. HMMMV.
B. Tracked vehicle.
C. 5-ton truck.
D. Water tanker.

31. Which sleeping area IS permitted?
A. Under a vehicle.
B. Inside a running vehicle.
C. An unguarded area.
D. A marked and guarded assembly area.
E. B and D.

32. Which of the following is suitable for transporting personnel?
A. In the cargo area of the last vehicle in a convoy.
B. In a dump truck with positive locking device.
C. On top of loaded cargo only if there is insufficient room within the body of the vehicle.
D. In a vehicle shelter.

33. Which statement is NOT true?
A. Animals such as rabbits, foxes, raccoons, and skunks have a high risk of carrying rabies.
B. Among the many nuisance "bugs" at NTC, only scorpions, spiders, and ants present a significant hazard.
C. Some small animals such as raccoons are easily tamed and may be safely approached and fed.
D. One good way to protect against scorpions and spiders is to check footwear before putting it on.

34. Which statement is NOT true?
A. A spark arrestor is to be used when burning solid fuel.
B. An area of 4 feet around the heater must be cleared of grass and weeds.
C. The fuel can for the heater will be located outside of and as far away from the tent as practical.
D. A tent heater may be operated at full capacity if two Class D fire extinguishers are present al all times.

35. Concerning reporting of accidents, which statement is true?
A. Only serious injuries need to be reported to your chain of command.
B. A minor case of heat exhaustion, where the soldier appears to recover after resting, does not need to be reported.
C. Only the safety officer or NCO needs to be concerned about reporting accidents.
D. All accidents, even minor ones, should be reported to the chain of command.

36. In cool weather , it is NOT necessary to drink fluids until you feel thirsty.
A. True
B. False

37. When refueling from a fuel tanker, vehicles must be:
A. Chocked.
B. Bonded.
C. Grounded.
D. All of the above.

38. A soldier lost in the desert during summer can survive _____ without water.
A. 1 day
B. 2 to 3 days
C. 4 to 5 days
D. 1 week

39. Sleeping areas must be designed and marked with:
A. Engineer tape.
B. Red-painted tent stakes.
C. Chem lites.
D. A or C.
E. All of the above.

40. What are the restrictions on transporting blanks and live ammo in the same vehicle?

A. Vehicle must have a minimum of two fire extinguishers.
B. Vehicle must be 2 1/2 ton or larger.
C. Blanks and live ammo may not be transported in the same vehicle.
D. Blanks and ammo must be separated by a 1-inch -thick sheet of plywood.
E. A and D above.

41. An Army accident is:
A. Any unplanned event that results in serious injury requiring a trip to the hospital.
B. Any event that could involve a lawsuit, such as an injury to a civilian or damage to private property.
C. Any event that results in personnel injury costing over $100.
D. Any unplanned event or series of events that result in injury or illness to personnel (Army or non-Army) and/or property damage (Army or non-Army) as a result of Army operations.

42. What are the correct dismount procedures for personnel being transported in an Army truck?
A. Passengers may dismount without verbal instructions from the driver only if the vehicle has come to a complete stop.
B. Passengers should wait for the vehicle to come to a complete stop, unhook the safety strap, lower the tailgate, and then dismount.
C. Driver should stop, unhook safety strap, open tailgate, and tell troops to use available steps when dismounting.
D. Passengers should wait for vehicle to come to complete stop, then dismount as quickly as possible to avoid carbon monoxide fumes and injury from vehicle movement.

43. Tracked vehicles may cross paved roads:
A. At intersections only.
B. At designated tank crossings only.
C. Anywhere they want (no restrictions).
D. At bridges , intersections, or designated tank crossings.

44. What restrictions are placed on tracked vehicles without an operable intercom?
A. There is no restriction.
B. The track commander must first instruct the crew on hand and arm signals.
C. After the track commander has approved the use of the vehicle with a circle X on the deficiency, there are no restrictions.
D. The vehicle may be operated only with a ground guide directing the vehicle.

45. In the risk management process, risk ASSESSMENT consists of:
A. Identification and evaluation of hazards.
B. Making a risk decision.
C. Implementation of controls.
D. A and B.
E. All of the above.

46. Which of the following are true about the risk management process?
A. Enforcement of performance to standards is a critical supervisory responsibility.
B. After mission completion, decisions should be evaluated for inclusion in lessons learned..
C. Individual soldiers should be aware of risk controls implemented.
D. A and B.
E. All of the above.

47. There are five steps in risk management. Select their proper order.

A. a,b,d,c,e	a. Make risk decision.
B. e,b,c,d,a	b. Supervise.
C. d,c,a,e,b	c. Assess hazards.
D. d,c,a,b,e	d. Identify hazards.
E. d,c,e,a,b	e. Implement controls.

48. Aircraft will only be approached or departed from the front in full view of the pilot.
A. True
B. False

49. The NTC MEDEVAC frequency is
a. 38.80 MHZ
b. 30.30 MHZ
c. 38.90 MHZ
d. 39.60 MHZ

FORT CARSON ACCIDENT RESPONSE CHECKLIST

- ☐ Have engineer tape emplaced around scene, place entry control point guard (MPs or unit personnel).
- ☐ Ensure site security by MPs or unit.
- ☐ Site evidence must be secured and protected (including from the elements).
- ☐ Advise unit commander to have applicable personnel report for toxicology testing. This must be conducted immediately for all Class A and B ground accidents and A, B, or C aviation accidents. Reference AR 385-40, para 4-4.a(3).
- ☐ Document known witness names and phone numbers, unit leadership can be tasked to obtain those in their unit. Note who has copies of initial statements, get them in hand to forward to the on site safety specialist or accident investigation board president.

REPORT THE FOLLOWING TO RANGE CONTROL OR RECORD THIS INFORMATION AND PROVIDE TO THE ON SITE SAFETY SPECIALIST.

- ☐ Were explosives involved, yes or no?
- ☐ Was radioactive material involved, yes, or no?
- ☐ Accident classification, page 11, para 8-3.
- ☐ Date and time of accident.
- ☐ On/Off duty.
- ☐ Type of equipment/material involved.
- ☐ Unit.
- ☐ MACOM.
- ☐ Night vision device in use.
- ☐ Exact accident location (grid).
- ☐ On/Off post.
- ☐ Has accident site been disturbed?
- ☐ If yes to above, have photos been taken?
- ☐ Weather conditions.
- ☐ Total number of personnel involved.
- ☐ Number of personnel by rank/category.
- ☐ Highest rank.
- ☐ Injuries fatalities/non-fatal injuries.
- ☐ News media present yes or no.